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The OIL WEEKLY

OIL and GAS ENGINEERING

FOR OIL AND GAS PRODUCTION AND PIPE LINE DIVISIONS

THE WEEK'S NEWS INTERPRETED

CEMBER 5, 1932
67 Number 12

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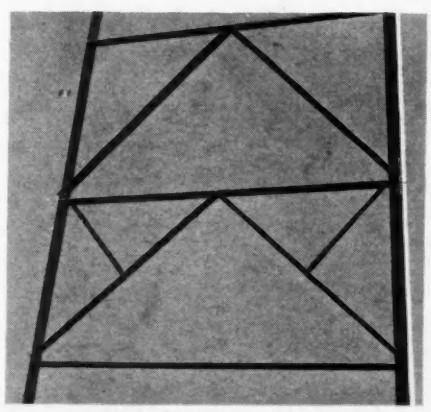

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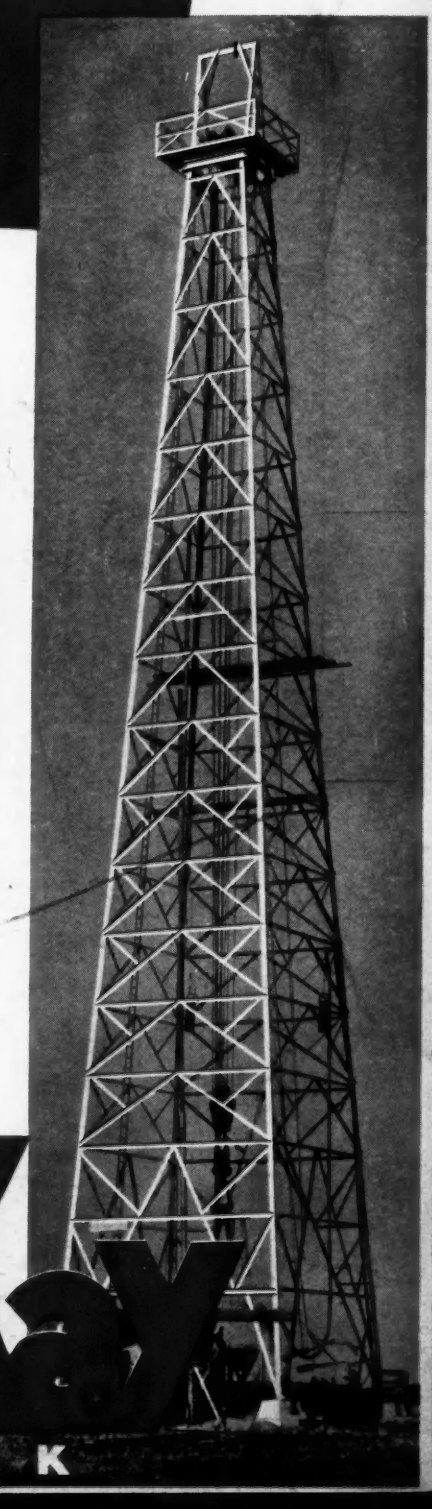

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The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

THE OIL WEEKLY

December 5, 1932
Vol. 67, No. 12

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Published Weekly by
THE GULF PUBLISHING COMPANY
HOUSTON, TEXAS

S. W. ROBINSON
Editor

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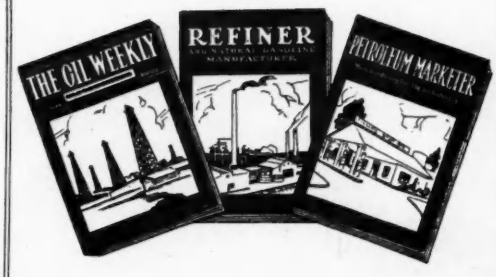

SPECIALIZED OIL JOURNALS

Published by

THE GULF PUBLISHING COMPANY

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Issued Monday of each week. Single copies 15 cents. Subscription price: Domestic $1.00 a year, Foreign $1.00 a year. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

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PUDDLED IRON SUCKER RODS

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

VOLUME 67, No. 12 DECEMBER 5, 1932

THE OIL WEEKLY

FOR OIL AND GAS PRODUCTION AND
PIPE LINE DIVISIONS

ENGINEERING • NEWS • STATISTICS

The Changing Panorama

Production of crude oil in the United States declined again in November as it did in the two previous months, bringing the daily average for the month far below any other month of the year. However, based on the estimates of the economic committees which reported to the American Petroleum Institute recently at Houston, the average is still too high for indicated demand. Field work continued at about the level of October with Texas continuing with about two thirds of the work and an even higher percentage of successful oil wells and indicated initial production. East Texas accounts for 42 per cent of the total completed wells during the first 11 months of 1932, and of 5499 wells completed there during that period, all but 101 produced oil.

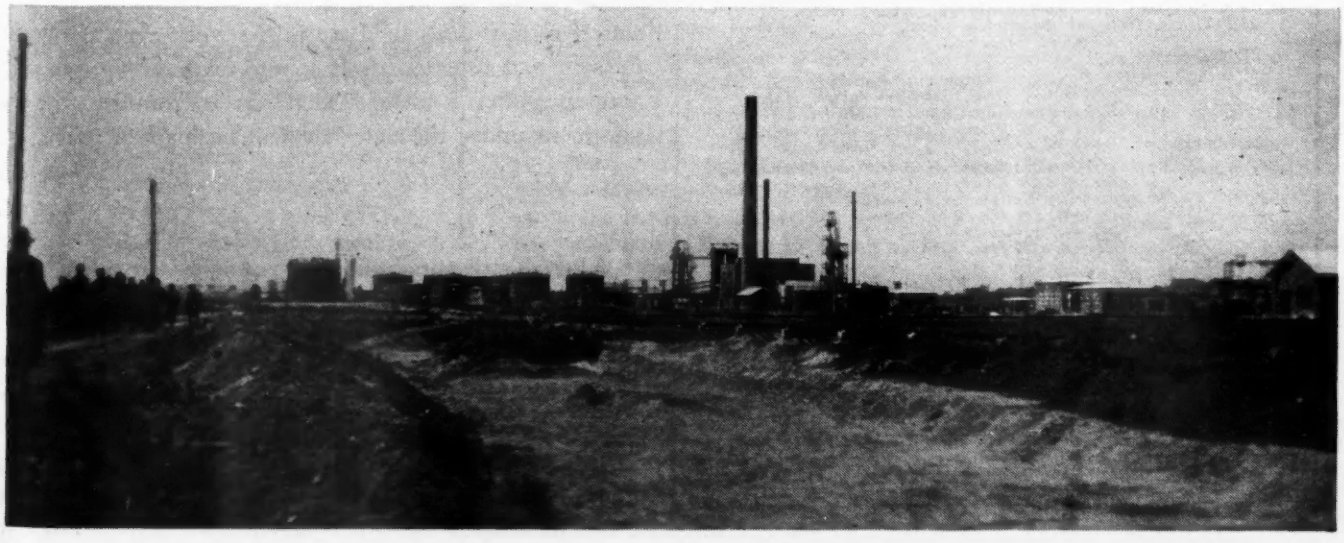
Five thousand feet was a magic depth for the Gulf Coast back in 1914 when one well came near to reaching that total. Now the wells below that figure number almost 1000. But five thousand feet is no longer the magic depth. Instead 10,000 feet might be substituted, for a few holes have gone beyond the 9000-foot level. The depth phase of such drilling in the Coastal area is presented in another of the series by Jack Logan.

Page 24.

Allred Again

It now seems almost inevitable that crude prices in Texas, Oklahoma and Kansas will be made uniform at the lower prices retained by Standard Oil Company (Indiana) et al at the time of the advance led by Sun Oil Company. During the week the instability of the higher prices was further emphasized by several smaller buyers reducing their payments. And to further complicate things, the Attorney General of Texas, already in the courts against the principal companies operating in that state, is being encouraged to institute proceedings against the offending Standard units on the premise

The refinery of Gewerkschaft Elwerath and associates, a cracking plant, at Misburg, Hannover, Germany. It was put in operation in April, 1932.



that their refusal to meet the higher prices is collusion. Oklahoma and Kansas officials may well be rated as being receptive to suggestion of this kind. Further, the general spirit of unrest in the public mind is conducive to a general revival of corporation baiting which eventually would mount to many times in dollars the cost of equalizing the price at the higher level which producers and royalty owners feel they have earned by lowering the production of crude. Page 11.

Well Spacing

Until data are available from oil fields now being produced, the petroleum engineer who considers the question of well spacing must rely on rule of thumb as well as the conclusion that each field is governed by laws known only to itself. Immediate hope lies in the possibility of careful solution of the problem from theoretical viewpoint of broad scope. Well space is related to most every other engineering problem of oil production and final solution will come after solution of these. Page 34.

The Oil Man's Calendar

DECEMBER

6-8 *Nebraska Petroleum Marketers, Omaha, Nebraska, Hotel Fontenelle.*

7-9 *American Institute of Chemical Engineers, Washington, D. C.*

8 *Executive Committee, American Petroleum Institute, New York.*

9 *Independent Petroleum Association of Texas, Ft. Worth, Texas, Texas Hotel.*

21 *California Oil and Gas Association Annual Christmas Jinks, Sala d'Oro, noon, Los Angeles, Biltmore Hotel.*

? *Rocky Mountain Oil and Gas Association, Great Falls, Montana, Rainbow Hotel.*

1933

JANUARY

7-14 *National Automobile Show, New York, Grand Central Palace.*

9-10 *Northwest Petroleum Association, North Dakota Division, Annual Convention, Fargo, North Dakota, Waldorf Hotel.*

12-13 *Northwest Petroleum Association, Minnesota Division, Annual Convention, St. Paul, Minnesota, Lowry Hotel.*

28-Feb. 4 *National Automobile Show, Chicago, Coliseum.*

FEBRUARY

15-17 *Ohio Petroleum Marketers Association, Columbus, Ohio, Deshler-Wallick Hotel.*

27-Mar. 14 *14th Exposition of Chemical Industries, New York, Grand Central Palace.*

MARCH

23-25 *American Association of Petroleum Geologists, Rice Hotel, Houston, Texas. Concurrent Meetings: Society of Petroleum Geophysicists and Society of Economic Paleontologists and Mineralogists, Houston, Texas, both at Rice Hotel.*

APRIL

13-15 *Petroleum Industry Electrical Association, Tulsa, Oklahoma.*

17-23 *Oil Equipment and Engineering Exposition, Dallas, Texas.*

20-21 *National Petroleum Association, Cleveland, Ohio, Cleveland Hotel.*

MAY

? *Natural Gasoline Association of America, Tulsa.*

OCTOBER

24-26 *Fourteenth Annual Meeting, American Petroleum Institute, Chicago.*

Pure Oil Company has made a strike in Michigan which appears of importance, and one which is expected to be followed by extensive drilling in a large area opened for probable production. Page 64.

Ordovician Speculation

"If all substantiated facts about that fascinating system [The Ordovician of West Texas] were strung together—" But there is no need to manufacture another simile here, for Addison Young has done that in good style himself. The substance of his opinion is that men talk much but know little about the Ordovician of West Texas. He sets down some facts that must be substantiated, largely by the drill before geologists can answer their questions. Page 12.

Oklahoma City field is four years old and during its brief existence has caused excitement, tragedy and comedy all out of proportion to its age. And as it enters the fifth year it is still in the throes of an endless wrangle on operation allowances, with attending charges and counter charges of inequity and down right lawlessness. Page 11.

Texas Nominations

"Figures don't lie, but—" is an old adage proven true when preliminary reports came out from the Texas Railroad Commission's compilation of nominations of purchasers for crude oil during the pending three months. First totals showed a demand for more than a million barrels, but by the time duplications were eliminated it was found that what the buyers want approximates what has been produced currently under the state's rigid proration. Late in the week even the commission had oriented itself in the maze of figures and announced that a cut of 50,000 barrels from the original allotment under the new law will be made at once. Page 10.

When Kettleman Hills was young as an oil field, it was common for drilling crews to spend more than a year penetrating to the 6000-foot level. Now they reach that depth in 30 days in some instances. The difference in time is the result of knowledge of formations and the absence of fear. The field no longer holds a "psychological handicap" over the driller. Drilling operations there will continue at the former number, since new locations keep pace with completions. Page 4.

Bottom-Hole Pressure *Basis for Determining* East Texas Output

Texas Commission Considers Physical Waste First—Market Demand Second

Austin, Texas, Dec. 2.—With the issuance November 29 of its formal proration orders for Texas under the new market demand provision of the oil and gas conservation statutes, the Texas Railroad Commission adopted a new method for prorating East Texas. The new basis, more conclusive than previous attempts, takes into consideration the bottom-hole pressure, extent of acreage in a lease, number of wells on a lease and the size of the field.

The plan, which will probably be known as the "bottom-hole pressure plan," was outlined before the commission at its hearing on November 26 and 28 by E. O. Buck, petroleum engineer for the commission in the East Texas area.

In issuing the new orders covering all districts of the state the commission indicated it will give first consideration to prevention of physical waste and secondary thought to any question of market demand which may be brought up.

An interesting point brought up was as to whether the commission will consider as a part of the market demand oil produced under a court injunction. The commission asserted such law is unlawfully produced and would not be considered part of the market demand. But several attorneys seemed to differ, expressing belief oil produced under an injunction would be legally produced and therefore would have to be considered a part of the market demand. This question promises to be an important one, and its early solution will be required if settled conditions are to prevail.

In outlining his proposed plan for East Texas proration Mr. Buck stated that the average bottom-hole pressure in the field is 1390 pounds, and in some areas, particularly near Joinerville, pressures are well below this mark, and many of the wells are on the pump.

Buck said that during the past year pressures have been taken regularly on 218 wells through the field, and it was from these data that the average was computed. With this information at hand, he seemed sure that the commission could use this as a basis for proration. He stated that when pressure drops lower than 1000 pounds the wells must be put on the pump, as a general rule, and that when the pressure drops below 600 pounds, the gas begins to come out of solution and physical waste of lifting energy results.

For these reasons, he said, bottom hole pressures must be maintained at the highest possible levels.

He recommended a top allowable of 325,000 barrels per day, based on his experience in the field before the martial law shut down, and on varying allowables in effect in the field since that time.

Buck said that at present gas-oil ratios in individual wells remains constant, but that between wells it varies from 295/1 to 400/1. He fears that reduced reservoir pressure will cause high gas-oil ratios, leading to a reduction in ultimate recovery from the field.

Buck explained that the bottom-hole pressure is above 1390 pounds over 62 per cent of the acreage, and over 32.8 per cent of the field it is below this mark. Of the total 114,000 producing acres in the field, the eastern third has lost more pressure than the remainder.

The variation in pressure gradient indicates that the field should not be treated as a unity, as has been done under the per-well allowable plan, but each group of wells in the same pressure zone should be treated alike, with a different allowable for those in other zones. The field, under all methods of control, has produced 207,000,000 barrels of oil.

New Plan Presented

Buck recommended that the field be produced on the basis of bottom-hole pressures, with key wells established at the corner and in the center of each square-mile sector of the field. The data obtained from them, he said, would give sufficiently accurate information for application throughout that sector; 332 of these key wells would be required for the field.

He suggested allocating two thirds of the top allowable of the field to be distributed equally between all wells in the field, and the balance to be alloted according to the bottom-hole pressure of the particular zone, plus a further allocation for acreage. This plan, estimating 9000 wells in the field, and using 325,000 barrels as the top allowable, was expressed in the following formula.

$$\frac{1}{9000} \times \frac{216{,}667}{1} + \frac{108{,}333}{114{,}000} \times \frac{\text{B.H.P.}}{1390} = X$$

That is, one well of the 9000 in the

Plan to Cut 50,000 Barrels More *from Texas Allowables*

Austin, Texas, Dec. 2.—Probability that the allowable for Texas will be reduced next week was indicated in a statement by Lon A. Smith here today.

"Upon a recheck of nominations for the various oil fields in Texas it was found that there were duplications therein which revealed that requirements to meet market demand are exceeded in the tentative order fixed by the commission Tuesday.

"I have directed the personnel of the Oil and Gas Division to submit detailed figures not later than Monday which should definitely establish the exact market demand for Texas oil, and at that time proper adjustments can be made.

"We hope to cut 50,000 barrels from the state allowable. By adjusting the order to meet duplications in the nominations, and by the voluntary reductions in their nominations which we expect some of the companies to make, this reduction will be distributed over the state. It is our opinion that the market demand is about 800,000 barrels, and this adjustment is required to correct the order. We thought that 850,000 barrels was too high, but we decided to give it a trial. We have found that our original judgment was correct. I do not have the figures as to where the reductions will be made, but hope to get this information when Mr. Parker returns to the city."

Parker is expected back Saturday.

field, times 216,667, or two thirds of the top allowable; plus 108,333, or one third of the top allowable, divided by 114,000, the number of producing acres in the pool; multiplied by the bottom hole pressure of the individual well, divided by the average bottom-hole pressure of the field, 1390 pounds, equals the allowable for the individual well.

Following this formula, Buck said that as an example, one well on one acre with 1000 pounds pressure would have an allowance of 26 barrels per day. One well on one acre with 1500 pounds pressure would have the same allowance. One well on 20 acres with 1000 pounds pressure would be permitted to produce 38 barrels, and one well on 20 acres with 1500 pounds pressure would be allotted 45.6 barrels per day.

At present, Buck said, the density of the field is one well to each 12.7 acres, and with an average bottom-hole pressure of 1390 pounds, this would mean an average per-well allowable of 33 barrels per well, on the basis of 9000 wells.

Buck stated that if this system were installed in the field, it would do much to correct the variation in pressure gradient which exists.

He explained that the larger allowable would go to west-edge wells, where the water is near, but where, also, higher bottom-hole pressures prevail. This would give these wells the advantage for the present, but would result in benefit to the entire field, as it would materially delay the necessity of putting on the pump those wells which lie toward the east.

When Buck finished his discussion of this proposal, which apparently met with the approval of most of those present, Jack Blalock, Marshall attorney representing Woodley Petroleum Company, began his cross-examination of the witness. Blalock seemed to be willing to accept the plan at the beginning, but it finally developed that Buck had told him the entire story the previous day, except that he had neglected, purposely, to include the question of allocation to acreage.

When Blalock had elicited this information, and found that Buck had purposely prevented him from having this data, while giving it to several others, the attorney refused to question the witness further.

He vigorously attacked the plan, declaring that it was the first step toward the unitization advocated by the major companies and denied in the law, and insisted that the commission discard it entirely.

On Tuesday, November 28, the commission installed the plan as outlined by Buck.

"Any order," said Blalock, "written on the acreage basis, will be enjoined before the ink is dry, and nullify the work of the legislature and the commission."

J. R. Parten, president of the Independent Petroleum Association of Texas, and also of Woodley Petroleum Company, urged the commission to prorate the field on bottom-hole pressures alone, zoning the field, and giving each well with the same bottom-hole pressure the same allowable.

Parten said that this plan took in the elements of position on the structure and the ability of the well to produce, as required by the decision of the three-judge federal court. He suggested that the proration be on the basis of 100-pound zones.

Other operators present suggested that the field be prorated on the basis of thickness of sand, but this was met with the objection that it was impractical of operation.

Conroe Field

Wm. F. Knode, petroleum engineer for the commission, stated that there were 57 producing oil wells, four producing gas wells, and 32 wells drilling in the Conroe field on November 23.

Further, he stated that there was from 13,000 to 20,000 acres proven in the field, which would require at least 600 wells, and that it might be bigger. He stated that the field was not a typical Gulf Coast dome.

Knode said that the potential of the field is 120,000 barrels, and recommended an allowable of 25,000 barrels a day to be allocated on the basis of 20-acre units. He urged that these unit allocations be reduced as more wells were drilled in new acreage in order to control the water.

New East Texas Proration Basis

Austin, Texas.—In its order of November 29, 1932, (effective December 1) governing proration in the East Texas field under the new "market demand" law, the railroad commission retained rules previously adopted for that area concerning spacing, drilling, completing and operating wells, but Rule 27 of the previous order (October 10, 1932), concerning proration allowable, was discarded for a new rule.

Until December 10, to permit inauguration of a new proration plan, wells are to be held temporarily to 37 barrels production daily each. Thereafter and until April 1, 1933, the field is to be held to a total of 325,000 barrels daily.

Effective as soon as possible in December and on the first day of each succeeding month, the commission will issue schedules showing pro-rata shares of all leases or properties in the field allowable.

Two thirds of the field quota is to be allocated equally to all wells in the field. The remaining one-third will be allocated according to a formula taking into account acreage and pressure factors.

With regard to that formula there will be key wells for determining representative bottom hole pressure data uniformly throughout the field. The producing area will be divided into pressure zones and contoured at 50-pound intervals. For determining average pressure of the field the area of each 50-pound pressure zone will be measured by planimeter measurement and a weighted average of the field obtained. For fixing the first production schedule bottom hole pressure data now available will be used, but new data will be obtained by the commission for future schedules.

In addition to the well allowable, therefore, the permissible daily production for each lease or property will be computed in accordance with the following formula:

$$Q = \frac{A}{B} \times \frac{C}{D} \times E$$

where the designated letters have the following meanings:

A=One-third of the field allowable.
B=Number of acres in the field.
C=Bottom hole pressure of lease.
D=Average bottom hole pressure of field.
E=Number of acres per well on lease.
Q=Allowable daily production allocated to acreage and bottom hole pressure.

In application of the new rule not more than 20 acres of surface ownership is to be allotted to one well.

Gulf Coast *Gets* Big Increase *Under* New Texas *Allowables*

Austin, Texas.—The new schedule of production allowances in Texas oil fields, issued by the Texas Railroad Commission in an order November 29 and effective from December 1, 1932, to April 1, 1933, fixes the state's total at 849,625 barrels daily. While that figure represents an increase from the previous allowable of 791,705 barrels, it is about 20,000 barrels below the level at which the state was actually producing under the old order.

The new order is the first issued by the commission under the new "market demand" law, passed November 12 in a special called session of the Texas Legislature. The fact that the state was exceeding its allowable under the old order was due to weakness of the conservation law upon which it was based, as evidenced by the invalidation of the commission's East Texas proration program by a federal court.

Analysis of the accompanying table showing new proration allowances of the different sections and fields of Texas indicates that the greatest increases are in the West Texas and Gulf Coast fields, and that the only substantial reduction was in the East Texas field, which was cut 10,000 barrels. The next highest reduction was in the Spindle Top field, on the Gulf Coast, which lost 60 barrels. West Central Texas gained 10,000 barrels, West Texas gained 16,200 barrels, and the Gulf Coast 25,240 barrels.

Some of the increases are not so startling as they would appear. The increase of 10,000 barrels in Yates merely gives it the same allowable it has operated under for a year. The West Central Texas allowable was required to take care of marginal wells, and the same was true of the North Central Texas area.

Nevertheless, it is expected that the reduction in East Texas and the increase in these other fields will cause trouble, as East Texans will expect that at least half of the total increase of 53,920 barrels should go to them.

At the time the orders were issued the commission gave out a statement urging the operators to "join with us in preventing illegal takings and to co-operate to the end that we may achieve what the lawmakers of the state had in mind when the new law increasing the powers of the commission was enacted.

"The commission feels that it should point out that the new law on oil and gas conservation had as its primary purpose the prevention of waste of a natural resource that means so much to all of the people of Texas.

"All of these interests are in our minds when we call upon all the elements of the industry to strictly observe the law and the orders of the commission.'

New allowables for the various fields and districts are set out below. Changes from the old allowables are indicated.

Commission Justifies Choice of East Texas Plan

Austin, Texas.—In issuing new proration orders for East Texas, the railroad commission stated reasons justifying its selection of a plan, declaring the chosen program considers all important factors, including bottom hole-pressure, acreage in the lease, number of wells on the lease, and the size of the field.

Reasons why other plans suggested at the hearing were not acceptable were also given. The plan involving thickness of saturated sand would be unsatisfactory, it was stated, due to necessity of drilling through the sand to determine its thickness, thereby bringing in bottom water, and due to paucity of cores.

The plan based on bottom hole pressures exclusively was rejected because it did not consider amount of surface acreage in leases. That based on potentials was discarded with the argument that unless the 9000 wells in the field were run wide open simultaneously for 24 hours, an impractical procedure, a fair test could not be obtained. The suggested plan of allocating production according to contour lines of the producing sand was also held im-

New Texas Production Allowables

	Old Allowable (Oct. 15, 1932)	New Allowable (Dec. 1, 1932)	Change
Panhandle District	45,000	45,000	
North Texas	46,000	56,000	+10,000
West Central Texas	21,500	31,500	+10,000
West Texas—			
Yates	55,000	65,000	+10,000
Winkler	25,000	27,000	+2,000
Howard-Glasscock	12,500	14,000	+1,500
Ector	4,000	4,000	
Crane-Upton	12,700	13,000	+300
Reagan County	20,000	20,000	
Other fields	12,500	14,900	+2,400
Total West Texas	141,700	157,900	+16,200
Southwest Texas—			
Darst Creek	14,000	14,000	
Salt Flat	7,500	7,500	
Other fields	27,450	27,450	
Total	48,950	48,950	
East Central Texas—			
Van	42,500	45,000	+2,500
Other fields	6,700	6,700	
Total	49,200	51,700	+2,500
East Texas	335,000	325,000	—10,000
Gulf Coast—			
Rabb Ridge	6,000	10,000	+4,000
Conroe	4,800	25,000	+20,200
Raccoon Bend	4,250	5,500	+750
Sugarland	8,000	9,000	+1,000
Barber's Hill	19,108	19,100	—8
Goose Creek	3,210	3,200	—10
High Island	5,159	7,500	+1,341
Hull	5,159	5,500	+341
Humble	4,125	4,125	
Pettus	3,822	3,800	—22
Pierce Junction	4,688	4,700	+12
Refugio	7,701	7,700	—1
Spindletop	2,760	2,700	—60
Other fields	24,750	24,750	
Total Gulf Coast	104,335	133,575	+25,240
Grand Total	791,705	849,625	+53,920

practical because of impossibility of locating those contours accurately.

While two thirds of the East Texas field's new allowable of 325,000 barrels daily is to be divided as formerly on a strict per-well basis, the other third will be divided with respect to bottom hole pressure and acreage of leases. It is estimated 320 key wells will be needed for the bottom hole pressure investigations, their locations to be in the center and at the corners of each square mile of producing acreage. With 9000 producing wells in the field, as now, the allowable is expected to vary from 26 barrels per well from wells on a one-acre lease to 44 barrels per well from one well on a 20-acre unit in the zone of highest bottom-hole pressures.

Regarding the fact that nominations for oil from the East Texas field exceeded 375,000 barrels per day, although the commission's order fixes the allowable at 325,000 barrels daily, the commission explained that "some nominations were ambiguous, others were conditional or restrictive, and others were duplications.

"On the other hand," it was asserted, "actual purchases and runs for the past month have been considered, and the fact that there are now nearly 200 unconnected wells, and the further fact that one purchaser which is taking or offering to take all the allowable oil from the wells to which it is connected, and thus insure ratable production, refuses to buy all of such oil saying it is not needed for current consumption and use, but is offering to store such oil which is not being purchased. Furthermore, this is the reason of decline in demand. These and other facts will justify the finding that the reasonable market demand is less than 325,000 barrels per day."

Erroneous Figures Give False Picture *of Crude Noninations*

Houston, Texas, Dec. 2.—Foreboding created last week by the widespread publication of figures purporting to show the nominations of crude oil purchasers in Texas in excess of 1,000,000 barrels a day, after a careful check of the figures, is shown to be ill-founded.

General consternation arose throughout the industry when it was indicated by the daily newspapers and some of the trade press that the purchasers had nominated such a high figure, whereas the state had been operating under the old proration law of not quite 800,000 barrels a day.

The figures released by the Texas Railroad Commission following its hearing in Austin November 26 and 28 were in fact the hastily compiled nominations of purchasers which at a glance show many duplications not only in the figures but as to the purchasing companies themselves. A case in point is the nominations of the Humble Oil & Refining Company and Reagan County Crude Oil Purchasing Company. The latter company has a contract with the former for the delivery of 20,000 barrels a day and this figure was nominated by both companies.

Such discrepancies and duplications account for roughly 150,000 to 175,000 barrels a day, which when deducted from the 1,000,000 barrel figure brings the actual nominations down to approximately the state allowable established by the railroad commission in its orders of November 29.

The accompanying table shows the nominations of the major purchasing companies for the month of December and is only of value to the extent of its completeness. Nominations of smaller purchasers and particularly independent refining companies have not been corrected sufficiently to reflect their requirements.

Institute's New Executive Committee Meets Thursday

New York. — The new Executive Committee of the American Petroleum Institute, elected at the annual meeting in Houston, November 16, will hold its first New York meeting on Thursday, December 8, at Institute headquarters, 250 Park Avenue. The members of the new committee are:

C. B. Ames, American Petroleum Institute; H. R. Gallagher, Consolidated Oil Corporation, New York; Charles F. Roeser, Fort Worth, Texas; D. J. Moran, Continental Oil Company, Ponca City, Oklahoma; W. T. Holliday, Standard Oil Company, (Ohio), Cleveland; Axtell J. Byles, Tidewater Associated Oil Company, New York; Amos L. Beaty, New York; R. C. Holmes, The Texas Company, New York; F. A. Leovy, Gulf Production Company, Pittsburgh; J. Edgar Pew,

Nominations of Larger Purchasing Companies, Indicating Daily Requirements During December, 1932

(Includes both amounts designated for companies' own use and amounts for re-sale)

COMPANY	East Texas	Van	Regan County	Conroe	Darst Creek	Gulf Coast	North Texas	West Central	West Texas	South West Texas	East Central	Pan-handle	Total
Humble Oil and Refining Co.	30,300	5,000	15,000	15,000	10,000	36,000	6,200	4,500	65,800	5,500	2,400	5,500	201,200
Stanolind Crude Oil Purchasing Co.	9,000	.....	.....	.....	.....	.....	10,410	.....	.....	.....	1,000	.....	20,410
Stanolind Oil and Gas Co.	.....	.....	.....	.....	.....	.....	.....	.....	9,870	.....	.....	.....	9,870
The Texas Company	14,500	2,500	3,000	.....	4,500	11,500	17,500	.....	3,300	.....	.....	8,500	65,300
Atlantic Oil Producing Co.	27,000	.....	.....	.....	.....	24,600	.....	500	5,100	.....	.....	.....	57,200
Sun Oil Company	22,250	.....	.....	.....	1,667	17,250	.....	.....	.....	.....	.....	.....	41,167
Pure Oil Company	3,500	45,850	.....	.....	3,500	332	2,349	.....	163	.....	.....	232	55,926
Continental Oil Company	.....	.....	.....	.....	.....	.....	11,300	.....	.....	.....	.....	2,500	13,800
Shell Petroleum Corp.	22,000	.....	.....	.....	.....	.....	.....	.....	22,625	.....	1,200	.....	45,825
Tidal Refining Company	18,000	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....	28,000
Crown Central Pet. Corp.	9,000	.....	.....	.....	.....	4,000	.....	.....	.....	.....	.....	.....	13,000
Marathon Oil Company	9,800	.....	.....	.....	.....	.....	2,000	.....	32,000	.....	.....	.....	43,800
Philtex Oil Company	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,000	15,000
Taylor Refining Company	15,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,000
Empire Oil and Refining Co.	15,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,000
Arkansas Fuel Oil Company	10,600	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,600
Yount-Lee Oil Company	5,565	.....	.....	.....	.....	20,339	.....	.....	.....	.....	.....	.....	25,904
Sinclair Prairie Oil Marketing Co.	28,000	.....	.....	.....	.....	5,000	3,200	.....	.....	.....	.....	1,800	38,000
Magnolia Petroleum Company	35,000	.....	.....	.....	9,300	.....	7,700	.....	2,300	8,300	200	3,600	66,400
Gulf Production Company	19,985	.....	.....	.....	2,153	17,090	1,169	.....	24,864	1,048	125	3,241	69,665
Gulf Pipe Line Company	14,605	.....	.....	.....	1,008	4,495	1,780	.....	1,886	117	.....	954	24,845
Atlas Pipe Line Company	30,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,000

Sun Oil Company, Philadelphia; E. G. Seubert, Standard Oil Company (Indiana), Chicago; H. F. Sinclair, Consolidated Oil Corporation, New York; and W. C. Teagle, Standard Oil Company (New Jersey), New York.

Institute Directors Will Meet Quarterly

New York.—Meetings of the American Petroleum Institute's board of directors, heretofore held monthly, hereafter will be held quarterly, it was decided at the thirteenth annual meeting of the Institute held recently at Houston.

Meetings of the executive committee hereafter will be held monthly to permit early discussion of current matters of interest.

Department heads and executives of the Institute's staff will hold weekly meetings, with President C. B. Ames presiding.

Oklahoma City Field *Completes Four Years of* Hectic Career

Oklahoma City.—Four years ago, December 5, Indian Territory Illuminating Oil Company completed Fee 1, CSE SE Section 24-11n-3w, bringing into existence the now famous Oklahoma City pool. Great was the rejoicing when on December 4, 1928, tools were blown from the hole and the well started producing at the rate of 207 barrels an hour from 6402 feet in Arbuckle limestone. Little did the operators realize what was to follow. During the four years which have elapsed, engineering, geological, production, and legal departments of the operating companies have been perplexed by the unusual problems with which they have been confronted. Alleged irregularities in producing the wells have drawn into the controversy many of the leading state officials including Governor William H. Murray, whose executive orders have set several precedents. The Oklahoma Corporation Commission, under whose direction the field is prorated, has had a liberal education in the technology of oil finding and production. No other field in the Mid-Continent has given the legal profession such a splendid opportunity to entrench itself within an industry.

Records from several different sources show that the pool has produced somewhere between 116,000,000 and 120,000,000 barrels of oil, the range of approximately 4,000,000 barrels apparently being due to differences in methods of reporting and to theft and illegal production. Proration authorities have reported discovery of more than a million barrels of oil which was produced but not reported for proration purposes.

Due to uncertainty as to subsurface conditions and the depth at which production was found, the drilling campaign was slow in getting started. On June 1, 1929, approximately six months after completion of the discovery well, there were only 29 operations and seven wells had been completed. At the end of the year total operations had reached 159 and 60 wells had been completed. Height of the campaign was reached in July 1930 when 316 operations were under way and completions were being reported at the rate of more than 50 wells per month. As of December 1, 1932, 114 wells had been completed in the Arbuckle lime zone, 449 in the Simpson below Wilcox, and 427 in the Wilcox sand zone, making a total of 990 wells, which represent a total of approximately 58,500,000 feet of hole drilled.

With a full knowledge of the manner in which Oklahoma City has been prorated some of the production records are remarkable. On the other hand yield of a portion of the pool has been rather disappointing. The outstanding production record is reported from NW Section 2-11n-3w, in the northern portion of the pool. As of November 1, 1932, this 160 acres had been exploited by 47 wells whose total yield to that date had been estimated at 12,000,000 barrels or 75,000 barrels

(*Continued on page 45*)

Allred To Investigate *Price Position of* Standard Units

Austin, Texas, Dec. 1.—Another battle between the major oil companies operating in Texas and Attorney General James V. Allred promised to develop when Allred announced that he will launch an investigation into charges made by Carl Estes, Tyler publisher, that Standard Oil Company (Indiana) and Standard Oil Company of New Jersey have entered into a conspiracy to break the price of oil in Texas, Oklahoma and Kansas.

In a lengthy telegram to the attorney general, Estes said that "five weeks intensive investigation had convinced me that beyond question of doubt it can be proven conclusively that a deep seated conspiracy to wreck the stability of the oil industry for selfish purposes, in Texas, Oklahoma and Kansas, exists between the Standard Oil Company of Indiana and the Standard Oil Company of New Jersey.

" . . . . in a very short time the jaws of this competition strangling pair of forceps will close upon and strangle every small independent oil operator in the country, as well as many of the larger independents.

"Unless properly dealt with, this commercial conspiracy will also result in the abandonment and permanent loss of multiplied thousands of stripper wells in the Mid-Continent area, for the simple reason that their owners will find themselves engulfed in a veritable flood of oil from flush fields with which it will be impossible for them to compete.

"That is a crime against posterity and much too dear a price for our people to pay in order that these companies may fill their yawning empty storage with 25-cent oil and again raise the price after that oil has been taken out of the hands of royalty owners.

" . . . . We stand ready to give you several nice leads and otherwise render every possible cooperation in a thorough investigation which I request that you launch at once. . . ."

In a statement Allred said:

"It is just as much a violation of the law for two or more oil companies to get together and try to beat down the price of oil for the purpose of destroying their competitors as it is for all of them to get together and raise the price of gasoline. If the charges made by Mr. Estes are true and can be substantaited, not only has there been a flagrant violation of the law, detrimental alike to competitors and independent operators.

"You may rest assured that I shall immediately launch an investigation into these charges made against the two Standard companies, and try to go to the bottom of it. Of course it is difficult to prove the existence of a conspiracy by direct testimony, but the courts have held that it may be shown by circumstantial evidence and acts. It is a serious charge which Mr. Estes makes, and the interests of the school children and of the entire citizenship of Texas are involved."

Current Knowledge of West Texas Ordovician *Leaves Much to Learn*

ADDISON YOUNG

IF all speculations about the Ordovician of West Texas were laid end to end, they would completely encircle the Permian basin, and there would be enough left over to motivate all the windmills in the enclosed area. If all substantiated facts about that fascinating system were similarly strung together, the array would be not nearly so impressive. For, in fact—except for scattered Ordovician outcrops in the Central Mineral region and the Trans-Pecos—there is as yet very little to restrict the imagination in its plunge downward through five geologic systems and several major unconformities. And yet, before there can be any consistent success in finding Ordovician oil, certain major problems must, through drilling, be withdrawn from the playground of fancy and placed in the category of facts. In the following paragraphs these problems are touched upon, together with an indication of what light has been thrown upon them by the handful of deep tests recently drilled and drilling.

In a descent into the earth like Alice into Wonderland, the first big problem encountered is the unknown thickness of the Mississippian-Pennsylvanian formations under the Permian. At Big Lake there are little if any sediments of these periods, but southwest in the Marathon basin 8000 feet of these sediments are exposed, and probably more are hidden. This comparison at least points out that these Carboniferous formations do not simply parallel at greater depths the Permian formations of the relatively broad and shallow Permian basin, but are instead distributed on an entirely different plan.

The most favored hypothesis about these older Carboniferous sediments is that they were deposited in a long, relatively narrow and deep trough which paralleled the north shore of Llanoria, the continent which furnished the sedimentary material. Northward beyond the trough and farther from land, sediments of the same age were much more thinly spread over a broad area. This is a beautiful picture but it does not tell the Ordovician prospecter just where he will run into the thickest Carboniferous section. The Pennsylvanian formations of the Marathon basin are a part of that belt of maximum sedimentation. Farther east the belt is supposed to swing south of the Llano uplift, and finally join the thick Pennsylvanian clastics of the Ouachitas in southeastern Oklahoma. It is therefore to be expected that the farther south from Big Lake a location is made, the greater will probably be the thickness of Mississippian-Pennsylvanian sediments encountered.

Just what the maximum thickness of these deposits is, is unknown. The generous accumulation at Marathon has been indicated. In northeastern Val Verde County, a well was drilled possibly 6000 feet into the Pennsylvanian without reaching the base. There is, however, this one consoling fact: because of the structural rise of the Permian basin southward, the Permian section grows thinner in the direction in which the older Carboniferous thickens. Whether the two will everywhere approximately compensate one another remains to be seen.

Concho Divide

The problem of the Mississippian-Pennsylvanian is further complicated by the Concho divide. This is a northwesterly extension of the Llano-Burnet uplift into Sterling County, and was probably an area of reduced sedimentation during the Pennsylvanian period. However, eastward from Big Lake there appears to be a general, regional thickening of the Pennsylvanian toward the deep Pennsylvanian geosynclines of North Central Texas. What, therefore, is the net result of these two factors on the depth of the Ordovician along the Concho divide is another unsolved problem.

On prying below the Carboniferous, the deep-boring prospecter immediately faces another big problem in the matter of buried high areas of the pre-Cambrian basement. Compared to this, our information about the Pennsylvanian is positively encyclopedic. The basement crops out for surface inspection in a few distantly scattered localities: the Central Mineral Region, northern Trans-Pecos, south central New Mexico, and a small area on the south side of the Rio Grande due south of the Marathon basin. It has been found beneath the Carboniferous Tesnus formation in southeastern Terrell County and beneath the Permian on the Fort Stockton "high." It seems possible that elsewhere in West Texas there may be buried pre-Cambrian hills, but at present the painful process of drilling seems to be the only way to discover them. At this early period in exploration it is perhaps unjust to cast undue suspicion on any particular areas; but it may be noted that there is a distinct parallelism between the structural trends of the Arbuckle-Wichita-Amarillo folds, the Red River arch, the Llano-Burnet uplift, and the Fort Stockton "high," all of which have pre-Cambrian cores. It therefore seems possible that the pre-Cambrian core of the Llano-Burnet uplift may be found relatively high somewhere on the Concho divide, and that the igneous ridge under the Fort Stockton high may extend some distance southeast across Pecos County and even farther. On the other hand, the basement found under Pecos County may be merely the south end of an igneous body underlying the large Central Basin platform.

A final problem is raised by the intense orogenies which closed the Pennsylvanian period, and involved all sediments, including the Ordovician, which had been laid down before that time. Along the front of Llanoria, the thick geosynclinal sediments were greatly compressed in a type of intense folding and faulting which in this case is considered unfavorable for the retention of oil. The Marathon basin and the Ouachita Mountains of Oklahoma belong in this structural zone, the two areas being probably united by a belt of similar structural character which passes around the southeast end of the Central Mineral region. Just where this belt lies hidden under West Texas is another item for prolific speculation. From well records it is known to lie not farther south than the Rio Grande, and may be some distance north of that limit.

These then are the first problems awaiting the attention of the drill, and in fact have been already receiving it. Last winter the attack on these problems was carried even beyond the limits of the Permian basin proper by a wildcat in southwestern Kerr County, Evans and Gant's Jeff Love 2. This test had a good show of oil at 5835 feet which attracted attention to the possibility of obtaining production in the Ellenburger under the Edwards plateau. Of course, there is some doubt that the Ellenburger is the source of the show in the Love well, one school of thought maintaining that the drill only reached the Mississippian. While a slight thickness of Mississippian sediments is exposed in the Llano region, the formations penetrated in the Love well from about 5600 feet to total depth of 5894 closely resemble undoubted Ordovician in other deep tests to the northwest. The writer, therefore, favors the interpretation that this wildcat was drilled nearly 300 feet below the Carboniferous into the Ordovician.

According to this interpretation the base of the Carboniferous—approximately the top of the Ordovician—in this well is over 2000 feet higher than in Phillips Petroleum Company's Holman 2, wildcat 55 miles northwest in Edwards County. But

this marker is considerably lower in the Kerr County well than in Kimble County to the north where the Ellenburger rises northeast to its outcrop in Mason County. Beneath about 1400 feet of Comanche strata, the Love well found 4200 feet of pre-Permian Carboniferous beds compared to 4400 feet in the Phillips Petroleum Company wildcat and 1500 feet in Irion County. In the Love well, moreover, because of erosion the full Pennsylvanian thickness is probably not present. These relations suggest that southwestern Kerr County is certainly much nearer the shore line of ancient Llanoria than Irion County, and probably nearer than northwestern Edwards County.

Compared to the rest of West Texas, Irion County is fairly riddled with 8000-foot wildcats to the Ordovician. For the county's third Ordovician test, Plymouth and Benedum's Sugg 1, was recently abandoned at 8282 feet, a few feet in the Ordovician. The two older deep holes are shown on the accompanying map. A fourth wildcat, Stanolind Oil & Gas Company's Williams 1, in the extreme southeastern corner of the county, also headed for the Ellenburger, was recently abandoned at 7420 feet, supposedly in the Bend, and hence not far from the base of the Carboniferous. This test and also the three which actually reached the Ordovician are all located well down on the steeply dipping Concho scarp. The latter is the southwestern flank of the Concho divide; it is reflected in the Permian beds, is much steeper in the Pennsylvanian, and probably occurs also in the Ordovician.

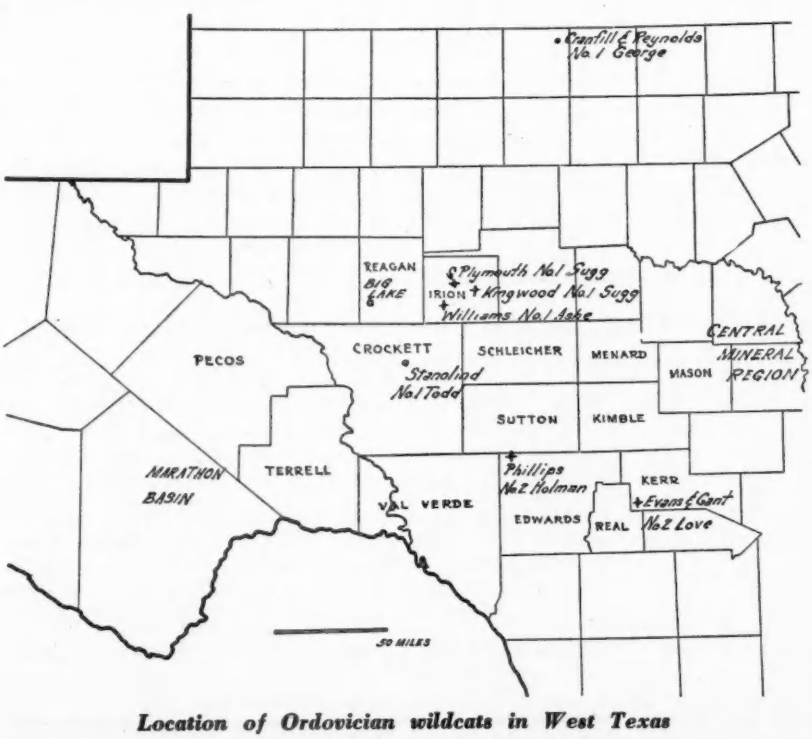
The three wildcats which reached the Ordovician encountered that horizon within a structural range of about 700 feet. They all had water in their objective, and none was drilled more than a few feet below the Carboniferous. Above the Ordovician these tests encountered 1100 to 1500 feet of black shale and sand, of Pennsylvanian age, which do not occur at Big Lake. It is this wedge of Pennsylvanian sediments which explains why the Ordovician is just about as deep in central Irion County as at Big Lake although the Permian beds in Irion County are 1500 feet, more or less, higher than in the pool to the west. This Pennsylvanian wedge appears to thicken toward the eastern part of the county.

Fisher County is the latest to enter the select group of West Texas counties which can claim at least one wildcat to the Ordovician, the deep test being Cranfill and Reynolds' George 1. This well is located on the north flank of the Royston pool which has been producing from the Cisco at about 3100 feet since 1928. The George well was drilled below this Cisco horizon, and after drilling about 3500 feet of Pennsylvanian, had the base of the Carboniferous at 6030 feet. A few feet lower at 6054 feet the well had a good show of oil in a formation which suggests a detrital zone between the Carboniferous and the Ellenburger. The finding of this oil tends to strengthen the indication from Big Lake that producing structures in the Ordovician of West Texas will be found to coincide approximately with Permian structures. Preliminary tests on this show in the George well indicated that it is not of commercial proportions, but it is possible that another deep test located in another part of the Royston pool would be a producer in the Ordovician. The George well was deepened below its show and from 6224 feet on down to 6289 feet found water in a dolomitic limestone which is probably the Ellenburger. At present the operators are drilling by junk in order to still further deepen the well a few hundred feet.

About two years ago a full account of the geology of the deep horizon at Big Lake was published in University of Texas Bulletin 3001. Since that time, although the number of deep wells drilled and drilling has increased from eight to 15, there has been no important change in the picture. The producing lime, the Ellenburger, has been penetrated to a maximum of about 500 feet; and that is about all the new exploration that has taken place at Big Lake in the past two years. However, in the very near future some unusually interesting findings should be forthcoming from the pool. Big Lake Oil Company's 1-C is being deepened below 9000 feet with the announced intention of exploring such truly Stygian depths as 11,000 to 12,000 feet. If the pre-Carboniferous formations at Big Lake are like those in the Central Mineral region, 1-C should encounter an additional 700 feet of Ellenburger, then 600 feet of earlier Cambrian shale, limestone, and sandstone, and beneath them hit the basement complex.

A very interesting wildcat is Stanolind Oil & Gas Company's Todd 1, in north central Crockett County. It is well located to throw considerable light on the problems outlined in the beginning of this article. It is 30 miles south of Big Lake, in the direction of probable thickening of the Pennsylvanian, and so may find a thickness of pre-Permian beds which are absent at Big Lake. On the other hand, certain structural possibilities indicate that here, as at Big Lake, the Pennsylvanian may have been eliminated; for instance, the regional structural axis on which the Big Lake anticline is located may extend to the Todd well. In addition, the location is near the crest of a large elliptical doming of the Permian lime, which may be, as at Big Lake, a reflection of similar structure in the Ellenburger.

And so the work of exploring for the Ordovician goes on in West Texas. The latest announcement is that in Schleicher County Wesner's Nicks 1, which has been shut down for a long time at 5580 feet is going to be deepened to 6300 feet in search of the Ellenburger.



Location of Ordovician wildcats in West Texas

For helpful criticism of the manuscript the writer wishes to acknowledge his indebtedness to J. E. Adams, E. H. Woods, and E. R. Lloyd. Thanks are due also University of Texas' land department and various companies for permission to examine well samples, and to Landreth Production Corporation which kindly gave permission to publish.

Oil Output *Down in November But Further* Decline Needed

JACK LOGAN
Staff Representative

SINCE authorities on economics of the petroleum industry generally contend that the whole industry's welfare depends largely upon how closely crude oil production is adjusted to demand, it is an optimistic picture which one sees in considering United States production for November, and for the first 11 months of 1932.

The year's figures do not represent the full amount of curtailment which would have been desirable in scaling down production to a falling demand, but they do offer encouragement, showing that domestic output has been 6.2 per cent lower in the first 11 months of 1932 than in the corresponding period of 1931, this year's figure being 723,687,360 barrels as compared with 771,358,200 barrels for last year.

Production figures for November, as well as for the previous month, are even more encouraging, showing that restriction of output has been particularly successful during those two months, a steady decline being brought about.

During November crude oil production of the United States was at the lowest level recorded in any month of 1932, the output of 63,368,900 barrels representing an average of 2,112,296 barrels daily. The extent of curtailment which the latter figure represents as compared with output in previous months of the year is indicated in the following table:

Month	Average Daily Production
January, 1932	2,190,000
February	2,137,300
March	2,157,050
April	2,228,597
May	2,212,301
June	2,167,753
July	2,158,785
August	2,135,200
September	2,172,223
October	2,137,640
November	2,112,296

While the November daily average was 25,000 barrels under that of October and 60,000 barrels less than that of September, it is higher than will be permissible in coming months if production is to be held to indicated demand, so that there will be no addition to crude oil stocks.

Economic Reports

Basing its figure on an estimated 12-per cent drop in demand for crude oil during the six months October 1, 1932, to March 31, 1933, as compared with the corresponding period a year earlier, the American Petroleum Institute's committee on refinery statistics and economics has announced as its opinion that domestic crude oil requirements (from production and stocks) during that period will average 2,048,000 barrels. Made public November 14, 1932, the report pointed out that nearly two months of the six-months period had already passed under conditions of production in excess of average requirements, and that for the succeeding four months of the period therefore the required supply would be only 2,000,000 barrels daily. Crude oil production during the latter half of November did not give rise to any need for revision of that committee's statement as to requirements for the four months beginning with December, 1932.

The mentioned report broke the six-months period into two parts and indicated it will be possible to fulfill all domestic crude oil requirements by taking from production and stocks an average of 2,098,000 barrels daily during the last quarter of 1932 and 1,997,000 barrels the first quarter of 1933. Even if there is no withdrawal from stocks in meeting those indicated requirements, there must consequently be very material reductions in production during coming months from the levels maintained in November. Thus if production is to be prevented from actually adding to the existing excessive stocks, through adherence to the above schedule, the output for December must represent a decline as great as for both October and November. For if the average for the last three quarters of 1932 is to be brought down to 2,098,000 barrels daily, the one remaining month must be cut to 2,045,000 barrels daily. The next step, then, under the Institute committee's program, would be holding output in January, February, and March, 1933, to 1,997,000 barrels daily, or at a level reduced even further.

For bringing about the 25,000-barrel decrease in daily production in November as compared with October, credit is shared by all important districts except the Rocky Mountain states in the aggregate and Louisiana, neither of which, however, lent any strong influence against the general shrinkage of output. Among the states which con-

Monthly Summary of United States Drilling and Production, November, 1932

State—	Month of October, 1932							Cumulative, January through November, 1932						
	Completions	Oil wells	Gas wells	Failures	Initial Production oil	gas*	Total oil production†	Completions	Oil wells	Gas wells	Failures	Initial production oil	gas*	Total oil production†
Oklahoma	109	64	8	37	26,581	326⅓	11,497,100	978	566	97	315	681,727	2881	138,588,400
Kansas	50	31	1	18	6,037	52	2,947,450	515	331	30	154	159,071	590½	32,718,585
California	19	15	3	1	15,560	39	14,142,200	255	181	14	60	152,063	225	163,801,050
Texas	722	568	12	142	3,486,858	124¾	25,933,950	8288	6769	139	1380	45,281,856	2302	288,533,040
Louisiana	37	16	3	18	9,722	18½	1,965,025	428	171	29	228	97,317	218¼	20,638,775
Arkansas	1	..	..	1	.....	....	1,013,675	33	3	1	29	360	3	11,402,850
Rocky Mountain States	28	13	4	11	77,284	75½	2,255,500	144	88	14	42	219,341	145	27,072,910
Eastern States	187	92	52	43	4,884	45¾	3,614,000	2569	1287	645	637	105,664	1657½	40,931,750
Total	1153	799	83	271	3,626,926	682	63,368,900	13,210	9396	969	2845	46,697,399	8015	723,687,360

*Millions of cubic feet.
†Preliminary, subject to revision.

tributed toward effecting the decline the most conspicuous was Texas, which had also been largely responsible for the material reduction during October. Smaller declines were recorded in Oklahoma, California, and the Eastern States, while Kansas and Arkansas showed slight drops. Following are comparisons of average daily crude oil production of above named states and districts for the past three months:

Average Daily Production, in Barrels

	Texas	Oklahoma
September	907,703	389,185
October	897,360	387,522
November	864,465	383,270

	California	Eastern States
September	480,440	123,890
October	475,642	123,455
November	471,406	120,466

	Kansas	Arkansas
September	98,530	35,236
October	98,923	33,833
November	98,248	33,789

	Louisiana	Rocky Mt. States
September	63,606	75,398
October	63,900	75,003
November	65,500	75,183

Field Work

Drilling activity in the United States continued during November, 1932, at approximately the same rate as in October. Based on four seven-day periods ending on dates in November, the accompanying table indicates that wells were completed during the month at an average rate of 41 daily. Similar figures for five seven-day periods ending on dates in October showed 40 completions daily on the average. The slightly higher figure for November occurred despite a slackening of development in East Texas, the slight decline there being somewhat more than offset by increased activity on the Gulf Coast, in South Texas and elsewhere.

Due primarily to the intense activity in the East Texas field throughout 1932, there has been a 20 per cent greater amount of drilling for the United States in the first 11 months of the year than in the corresponding months of 1931, this year's cumulative total of 13,210 wells completed comparing with only 10,533 in 1931.

With respect to productive oil wells among the completions, the influence of East Texas is even more pronounced, pulling the proportion of successful tests up exceptionally high for 1932. Thus occurs the circumstance that while total completions are running 20 per cent higher in 1932 than in 1931, the number of new productive oil wells is running 37 per cent higher, the total of 9396 for the first 11 months of 1932 comparing with only 5900 in 1931.

The conspicuous role which East Texas has played in statistics on drilling activity in the United States is indicated by the following facts. Of the 13,210 wells completed in the country in the first 11 months of this year 5499, or 42 per cent, were in East Texas. Those 5499 East Texas completions included 5398 productive oil wells, a remarkably high proportion of successful tests. The extent to which 1932 development in the area has exceeded that of last year is indicated by the fact that the 5499 completions through November this year correspond with only 3231 in the similar period a year earlier.

It has been largely through the circumstance of the concentration of field work in the East Texas field, a strictly prorated area, that the industry has been able to achieve a six per cent reduction of production in 1932 despite a 20 per cent increase in the number of new wells completed.

Colorado Wildcat *Will Stimulate Search for* New Major Oil Field

R. L. HAZLETT

Denver, Colo., Nov. 25 (Special)—Ramsey Petroleum Company's wildcat, Tighe 1, SW NT SE Section 17-7n-59w, 13 miles northeast of Greasewood flats field in Colorado last Monday night shot oil and drilling fluid over the crown block of its 134-foot derrick and indicates immediate drilling activity if not a major light oil field in northeastern Colorado. The test is on the new Raymer-Buckingham structure which is geologically similar to producing fields in the Mid-Continent. Capacity of the well to produce has been estimated from 500 to 3000 barrels when it is completed.

The well is the first test in northeastern Colorado to drill into the Dakota sand and not find water.* Hole is only four feet in the Dakota formation which is estimated at 120 feet in thickness. Total depth of the well is 6762 feet. A gas flow of 10 million cubic feet is believed to be coming from the Muddy sand which was topped at 6686 feet.

Since Saturday the well has been flowing by heads and prepartions are underway to kill to drill deeper with rotary equipment. Report that the well would be deepened with cable tools is denied. Casing was run only to the top of the Muddy sand at 6686 feet. A shaley formation 55 feet thick exists between the Muddy and Dakota sands, and 60 feet of cavings are in the bottom of the hole. Some fear is expressed that the hole has been bridged by the shale formation.

After cleaning out, operators plan to drill several feet deeper into the Dakota and run a string of 5 3/16-inch casing to the top of the Dakota. Perforated pipe will be set through the Muddy to produce from both sands and to take advantage of the strong gas lift coming from the Muddy sand.

The test was spudded September 8 of this year. It started with a 20-inch hole and set 300 feet of 15½-inch surface casing. The hole was carried down to the top of the Muddy at 6686 feet before a string of seven-inch casing was run and cemented.

Ownership Indicates Rapid Drilling

Acreage around the test is rapidly being tied-up. With 13 companies and seven independents holding leases within the vicinity of the Ramsey wildcat there will be plentiful and rapid drilling. Ramsey interests are reported to hold 9000 acres under lease and in fee lands. Those interested in the Ramsey holdings are W. L. Kistler, one sixteenth; Greeley Oil Company, one-thirty-second; Manning and Terry, drilling contractors for the well, one sixteenth.

There has been a strong religious appeal in the drilling of the well. After Eugene Tighe of Elizabeth, Colorado, on whose land the well is located, sold his royalty to Ramsey Petroleum Company, W. R. Ramsey, president of the company, assigned part of his royalty to St. Anthony's church, a Roman Catholic parish in Oklahoma City. In a number of reports the well has been carried as St. Anthony 1, and in others as Tighe 1. If the well comes up to expectations, St. Anthony's church will be well situated financially.

Company holdings in the New Raymer-Buckingham area are as follows: Ohio Oil Company, 30,000 acres; The California Company, 27,000 acres; Continental Oil Company, 20,000 acres; The Texas Company, 15,000 acres; Fort

(*Continued on page* 63)

*See The Oil Weekly page 56, November 28, 1932.

MEN IN THE INDUSTRY'S NEWS

W. A. "BILL" REITER, consulting geologist and an occasional driller of wildcat tests in the Woodbine sand belt of East Texas, with headquarters at Mexia, Texas, scored and drew a blank on November 19. A seven-pound boy, his third, arrived about the time a rotary crew were given orders to plug a wildcat failure drilled by Reiter et al on a secondary fault zone to the east of the Mexia fault.

FRANK S. LANE, superintendent of drilling tools in Texas and New Mexico for Magnolia Petroleum Company, Dallas, is taking a belated vacation by enjoying the health rejuvenating waters offered at Hot Springs, Arkansas.

J. E. BOBO, formerly purchasing agent for T. T. Word Supply Company and prior to that connected with Hercules Supply Company in Texas, now is sales representative for Exner-Dodge Packer Company and is making his headquarters in Houston.

JIM MORGAN, formerly with Smith Separator Company and later with Camp-Morgan Company of Tulsa now is connected with Webster Engineering Company as sales representative in North and West Texas and also East Texas.

M. H. MOSIER, president, and Charles T. Wilson, vice president and general manager of Petroleum Corporation of California, have returned to the headquarters office in Los Angeles after an extended visit in the Mid-Continent area. Mosier is one of the old timers in Oklahoma oil history, having drilled the second well in the famous Glennpool.

GEORGE H. JAQUES is now vice president in charge of Rocky Mountain Division for Stanolind Oil & Gas Company. It is understood that shortly after the first of the year 20 former Midwest Refining Company employes will be transferred to the Tulsa office, which is operating headquarters for Stanolind Oil & Gas Company.

A. JACOBSON, president of Amerada Petroleum Corporation, has been in Tulsa since before Thansksgiving, conferring with various departmental heads.

RALPH B. LLOYD, president of Oil Producers Sales Agency of California, will visit New Orleans, Florida and Cuba before returning to Los Angeles from the Mid-Continent. He will return via the Panama Canal.

J. S. COSDEN, former head of the Cosden Oil Company, visited the general offices of the company at Fort Worth, Texas, last week for a conference with the receivers in charge of the affairs of the company. It is reported that favorable progress has been made towards the removal of the company from receivership.

JOSEPH B. UMPLEBY, chairman of the production division, American Institute of Mining and Metallurgical Engineers and well known geologist, was a recent visitor in Tulsa.

DR. DONALD C. BARTON, consulting geologist and geophysicist, Houston, was on the program of the Shreveport Geological Society's December meeting, held December 1, for a paper entitled "The Plan of Alignment of Gulf Coastal Salt Domes and Gulf Coastal Geosynclines."

DOUGLAS FYFE, well known Los Angeles geologist, has returned to California after an extended South American trip. He traversed the jungles of the upper Amazon, and believes the district has great potential possibilities.

M. L. BENEDUM and Joseph Trees of the firm Benedum and Trees, Pittsburgh, have returned to that city after making a survey of conditions in Mid-Continent fields.

E. R. and W. W. VALENTINE of Los Angeles, representing Fullerton Oil Company, and G. L. Van der Leck, geologist for the company, are inspecting holdings in the Grass Creek and Little Buffalo Basin districts in Wyoming.

A. E. WALLACE, superintendent of field operations for Western Gulf Oil Company of California, has been spending some time in the Watsonville, California, area, where the company recently started drilling a wildcat well.

AXTEL J. BYLES, president of Tidewater-Associated Oil Company, recently visited company offices in Los Angeles and San Francisco.

FRED E. COOPER, manager of the oil country division, Allis-Chalmers Manufacturing Company, is spending several days in the fields of Western Kansas.

McKay Heads Connection Committee

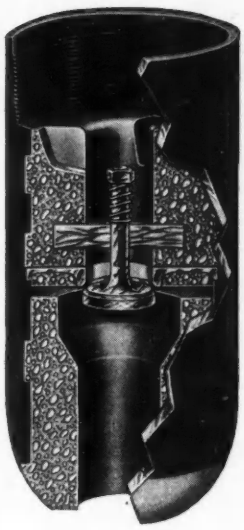
LESLIE McKAY

Dallas, Texas.—More direct contact with the crude outlet situation in the East Texas field is to be had by the Texas Railroad Commission as result of Leslie McKay, chief deputy supervisor, having been appointed chairman of the well connection committee. John G. "Jack" Pew, Sun Oil Company, Dallas, resigned as chairman after having served during the 11 months that the committee has been functioning in providing pipe line and market relief for unconnected wells. However, Pew has been appointed vice chairman, and will continue active in the committee work. Since the committee was created late in 1931 it has taken care of about 1200 number one wells whose owners could not attract a market outlet.

The first meeting of the committee with McKay presiding is scheduled for Dallas December 3, and about 150 unconnected wells will probably be given consideration. The committee will also endeavor to readjust outside well connections to relieve purchasing companies that lowered or increased their nominations. Considerable time will be required to make the necessary changes since most involve reductions in nominations.

Chief Deputy McKay is in direct charge of the permit to drill application department of the commission at Austin, and in performing such duties has within his power to check unnecessary drilling in the East Texas and other fields.

ANNOUNCING . . . *the NEW*



Larkin

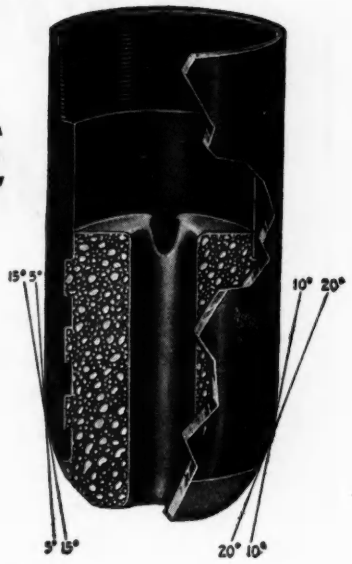
HERCULEAN GUIDE

for

FLOAT SHOES

and

GUIDE SHOES



An entirely new idea in guides. Sixty per cent of the tapered portion being on the shoe itself.

At a 20 degree angle the entire thrust or contact is on the steel shoe eliminating the possibility of breaking the concrete by coming in contact with obstructions in the hole.

It has greater strength than any other guide with absolutely no metal to be removed from the hole. Furnished on Float Shoes and Guide Shoes larger than 7″. Our regular Bakelite Guides furnished in sizes under 7″.

The Float Shoe is equipped with a water-tight positive acting Bakelite valve.

All valves are given a 2000 lb. hydraulic pressure test.

AT ALL SUPPLY STORES

LARKIN PACKER COMPANY

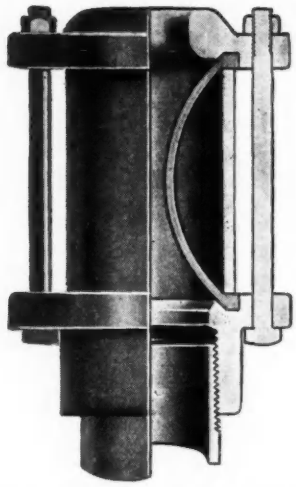
ST. LOUIS, MISSOURI HOUSTON, TEXAS OKLAHOMA CITY, OKLA.

***Warehouse Stocks* at Willow Springs**

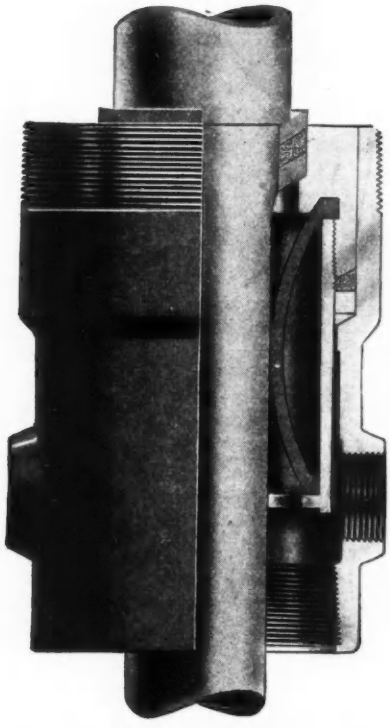
Are you Losing Oil?

Now that you have brought in the well are you losing the profits in pumping? Save this oil by placing the Brewster Succor-rod Oil Saver on the tubing and the Brewster Oil Saver Tubing-head on the casing. This combination wipes the oil from the rod and serves as a packer to prevent the escape of oil and gas. The material used in these two Brewster products is high grade Chrome Nickel Steel, manufactured in Brewster's own Electric Furnace.

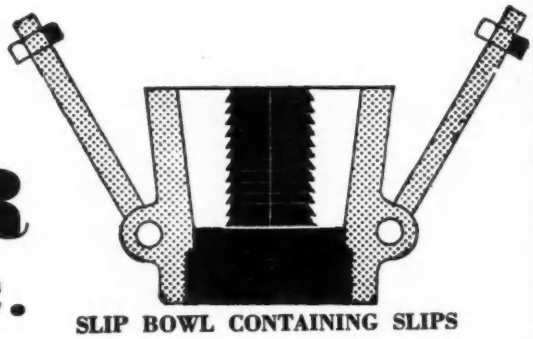
For more economy in production install the Brewster hook-up for flowing wells. This typical flow-line hook-up is an important control system. By using only two master valves the Flow-Bean or control valve functions as a complete shut-off—an exclusive feature in the design of the control-head to conserve the gas. By having the gas entirely cased off between the casing and the tubing no gas comes thru the flow-line, thus causing a longer flow of the well and more production.



SUCCOR ROD OIL SAVER



OIL SAVER TUBING HEAD



SLIP BOWL CONTAINING SLIPS

These slip bowls are used with slips for any sized tubing, providing a full opening to pass the tubing catcher through or for drilling. Remember they are made of Chrome Nickel Steel as are all other Brewster products.

The BREWSTER COMPANY, INC.

SHREVEPORT, LOUISIANA

★ *Warehouses:* The Iverson Specialty Co., Oklahoma City, Oklahoma, Phone 2-2833; The Brewster Houston Store, 2000 Harrington Street, Capitol 2031; Longview, Texas, 313 E. Cotton Street, Phone 781. *Export Distributors:* Acme Well Supply Company, Inc., 136 Liberty Street, New York City.

MARKETS — STATISTICS

More Companies Abandon Higher Price Schedule and Increase Seems Doomed. Low Grade Gasoline Reaches New Low in Oklahoma. Decline in United States Production Continues.

More Buyers Abandon Last Increase of Crude Prices

RECENT developments in the crude oil market in Texas have been in the nature of unfavorable omens, indicating it is doubtful if Magnolia Petroleum Company, Shell Petroleum Corporation, The Texas Company, and other large purchasers will uphold their "higher" prices for Mid-Continent oils through the remainder of the year.

That higher level of prices, placed in effect October 15, 1932, was dealt a second blow within a period of a few days on November 25, when Pure Oil Company reduced its price postings for Gulf Coast crudes to the same level as that adopted by Humble Oil & Refining Company effective November 21.

That schedule of the latter named company was also accepted by Tidal Refining Company when it announced November 23 its entrance into the Conroe field as a producer.

Humble Oil & Refining Company, which purchases four times more crude oil in Texas than any other buyer, not only steadily refused to meet the advanced prices scheduled by other purchasers October 15, claiming conditions did not warrant such increase, but effective November 21 implied that even the old prices were unjustified in some instances. On that date the company cut Mirando district (South Texas) crude 10 cents a barrel to a new posting of 70 cents, as compared with 90 cents paid by Magnolia Petroleum Company and others under the October 15 posting. The November 21 price schedule of Humble Oil & Refining Company made one other change, cutting heavy Gulf Coast crudes from 10 to 20 cents per barrel below the previous schedule of the company, which was itself 10 cents a barrel under the October 15 prices of other companies. Thus the prices of the company were left unchanged for the lighter Gulf Coast oils, beginning with 25 to 25.9 gravity, which is 81 cents a barrel, although other companies effective October 15 quoted the same grade 10 cents higher. But whereas the previous schedule of Humble Oil & Refining Company listed all oils below 25 gravity at 80 cents, the new one lists 20 to 24.9 gravity at 70 cents and oils below 20 gravity at 60 cents.

THE OIL WEEKLY

District	For Week Ending Dec. 3	Nov. 26
TEXAS—		
Texas Panhandle	45,475	45,625
North and West Central Texas	73,350	73,200
West Texas	163,050	163,050
East Central Texas	48,800	49,800
East Texas Field	354,000	352,200
South Texas	55,800	56,600
Total Texas outside Gulf Coast	740,475	740,535
Texas Gulf Coast	133,750	134,050
Total Texas	874,225	875,185
OKLAHOMA—		
Oklahoma City	63,220	58,690
Seminole District	124,680	127,250
Other Oklahoma	179,865	180,760
Total Oklahoma	367,765	366,700
KANSAS—		
Ritz-Decker	16,375	22,450
Voshell	6,405	6,570
Other Kansas	72,680	73,080
Total Kansas	95,455	102,100
LOUISIANA—		
North Louisiana	29,250	29,075
Louisiana Gulf Coast	35,300	36,300
Total Louisiana	64,550	65,375
ARKANSAS	33,675	33,625
CALIFORNIA—		
Long Beach	69,000	70,000
Santa Fe Springs	57,500	58,000
Midway-Sunset	46,000	48,300
Kettleman Hills	61,500	63,000
Other California	232,000	234,700
Total California	466,000	474,000
MOUNTAIN STATES—		
Wyoming	34,600	34,850
Montana	6,400	5,900
Colorado	2,750	2,600
New Mexico	31,450	31,600
Total Rocky Mountain States	75,200	74,950
EASTERN STATES	96,800	98,400
MICHIGAN	19,250	19,450
Total United States	2,092,920	2,109,785

A particularly disturbing factor insofar as the Gulf Coast is concerned, and indirectly as regards the general crude oil market, has been the occurrence of spasmodic outbreaks of big production in the booming Conroe field, Montgomery County, under the influence of court injunctions interfering with the railroad commission's proration orders. Under such conditions Conroe crude commands relatively low prices at the well, considering its gravity and refining qualities, despite the low transportation costs involved in reaching coastal refineries and tanker-loading docks.

Under the postings of both Humble Oil & Refining Company and Tidal Refining Company Conroe crude of 35 to 35.9 gravity is priced at 90 cents a barrel, and a two-cent differential applies for higher grades up to a peak of $1 for oils of 40 gravity or higher.

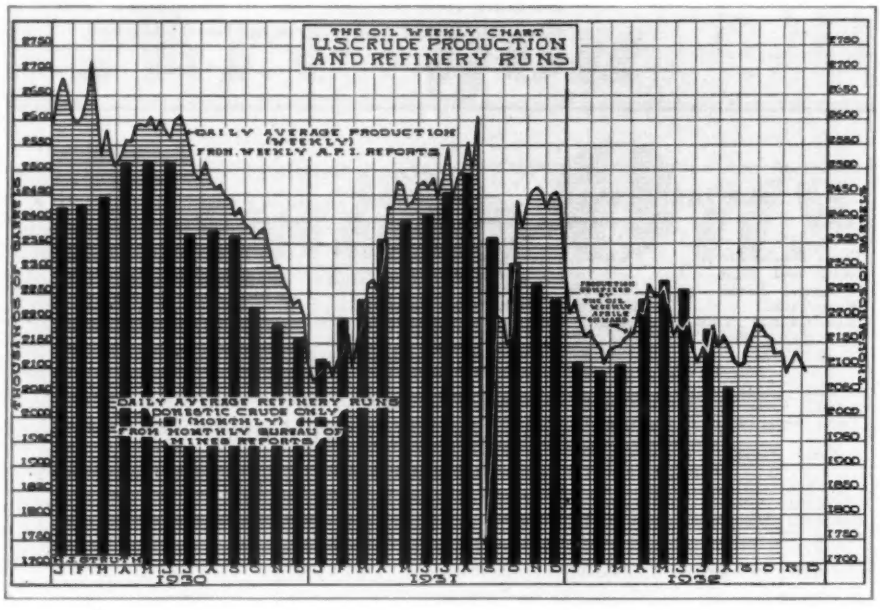
Three Oklahoma Buyers Reduce Crude Prices

ANNOUNCEMENTS were received during the week from three purchasers of Oklahoma and Kansas crude of intention to return to the old price schedule of 76 cents for 29 degrees and below with a two-cent differential for each degree, making 40 and above $1.00 per barrel. Vickers Petroleum Company of Wichita, Kansas, which purchases approximately 2250 barrels daily, returned to the old schedule effective at 7:00 a. m., November 23, being followed on the same date by El Dorado Refining Company. Anderson-Pritchard Company, purchasing principally from the fields of southern Oklahoma, revoked the new price effective 7:00 a. m., November 22. This move on the part of the smaller purchasers, if generally followed, probably will upset the new schedule and re-establish Standard Oil units as the price makers for Mid-Continent crude.

Deep Rock Oil Corporation returned to the old crude price schedule effective at 7:00 a. m., December 1. In announcing the change officials stated that an effort had been made to cooperate in securing a better price but that the company could no longer afford to pay the new price in view of failure of several important units to increase. It will follow postings of Stanolind Oil & Gas Company.

United States Production Continues Downward

AVERAGE daily production of the United States underwent a 16,825-barrel decrease for the week ended December 3, extending the decline which set in the previous week, and bringing the average down to 2,092,920 barrels daily. This two-weeks steady decline in output is a favorable manifestation, revealing that production is being scaled



down in close conformity with dropping demand.

The above figure is slightly below the total average daily requirements for United States crude oil as estimated recently by the American Petroleum Institute for the last quarter of 1932, but since that estimated average was exceeded considerably during October and November, it will be necessary for remaining weeks of the year to bring further sharp decline to avoid adding to already excessive stocks.

Fluctuations in production the past week as compared with the previous corresponding period were small for individual oil states, the most important changes being declines of 7000 and 8000 barrels respectively in Kansas and California. Oklahoma and Texas, which are ordinarly subject to important fluctuations, showed practically no changes.

Hope of bringing the production level down further in the future will depend in great measure upon the results of operation of the new proration program in Texas, placed in effect December 1. Based on the new "market demand" law of that state, the new orders of the railroad commission fix the state's allowable at 849,625 barrels daily, which is about 25,000 barrels less than the state has been actually producing the past two weeks.

IMPORTS of crude and refined oils at principal United States ports for the week ended November 26 totaled 654,000 barrels, a daily average of 93,429 barrels, compared with a daily average of 106,571 barrels for the week ended November 19 and 106,036 barrels daily for the four weeks ended November 26. These are figures of the American Petroleum Institute.

That organization also reported that receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended November 26 totaled 210,000 barrels, a daily average of 30,000 barrels, compared with a daily average of 12,143 barrels for the week ended November 19 and 24,107 barrels daily for the four weeks ended November 26.

Low Octane Gasoline Makes New Low; Naturals Strong

QUOTATIONS on low octane motor fuels reached a new low in the present decline during the week when shipments of the grade were said to have been lighter than for any like period during the past five years. Local observers believe that action of the Texas Railroad Commission in holding allowable for that state below 1,000,000 barrels daily was a constructive move and should have a strengthening effect on the general market. However, it apparently had not been felt as the week came to a close. There are those who believe that the principal need is a shutting off of illegally produced and transported oil in the East Texas area and that regardless of allowable for that state, the Mid-Continent refinery gasoline market can show but little improvement until cheap or distressed material is cut off from the small refiners in East Texas. Some of the material of course comes from other Texas areas and some from small Oklahoma plants but this is believed almost immaterial.

All grades of natural gasolines, especially the low vapor test materials, continued active with prices tending toward additional strength in the northern markets. Kerosenes, which have had a surprising amount of strength during the recent slump, continued strong and prices for the water white grades remained above those prevailing in the low octane U. S. motor fuel market.

Group 3 prices, exclusive federal tax, appeared to be as follows:

Refinery gasolines:

Low octane U. S. motor fuels, 3½ to 3¾ cents with scattered small sales reported as low as 3¼ cents; middle octane, 3⅝ to 3⅞ cents; high octane, 3⅞ to 4⅛ cents; 60-62, 400 e.p., 3⅝ to 3¾ cents; 64-66, 390 e.p., 3¾ to 4 cents; 64-66, 375 e.p., 3⅞ to 4 cents; and 68-70, 360 e.p., 4¼ to 4½ cents.

Natural Gasolines: 76-80 gravity, 10 to 15 pound vapor, 4¼ to 4½ cents; 15 to 18 pound vapor, 3½ to 3¾ cents; 20 to 24 pound vapor, 3¼ to 3½ cents; and 26-70, 3¾ to 3⅞ cents.

Kerosenes: 41-43 water white, 3½ to 3¾ cents; 42-44 water white, 3⅝ to 3⅞ cents; and 44-46 water white, 4 to 4¼ cents.

Crude movement from and to Oklahoma and Kansas storage continued to fluctuate throughout November. During the week ending November 1, estimated net movement in the two states was 22,500 barrels daily from storage, during the succeeding week 11,500 barrels daily went to storage; the week ending November 15 saw this figure drop to 1000 barrels daily to storage, and during the week ending November 22, the net daily movement was 17,200 barrels out. Several times during recent months observers have thought that some relationship might exist between geenral market conditions and crude movement in Kansas and Oklahoma. However, no consistent deductions can be made and the only general rule upon which crude movement can be predicted is that over a period of a month or more the net movement will be from storage.

California Still Hopes for Attaining Proration Figure

CALIFORNIA production has been running from 25,000 to 35,000 barrels daily over the allowable for some time, but there is still hope that the 440,000-barrel quota will be approached by the end

Crude Runs to Stills, Motor Fuel Stocks, Gas, and Fuel Oil Stocks and Cracked Gasoline Production, Week Ended November 26, 1932

(Figures in barrels of 42 gallons each)

DISTRICT	Daily Refining Capacity of Plants			Crude Runs to Stills		MOTOR FUEL STOCKS					Gas and Fuel Oil Stocks	Daily Charging Capacity of Cracking Units			Cracked Production Daily Average
	Potential Rate	Reporting Total	Reporting %	Daily Average	% Operated	(a) At Refineries	(b) Bulk Terminals	(b) In Transit	(c) Other M.F. Stocks	Total Motor Fuel		Potential Rate	Reporting Total	Reporting %	
East Coast	644,700	638,700	99.1	448,000	70.1	3,558,000	6,664,000	1,246,000	300,000	11,768,000	9,277,000	344,400	326,400	94.8	99,000
Appalachian	144,700	137,500	95.0	89,000	64.7	1,037,000	463,000	24,000	200,000	1,724,000	759,000	59,100	57,600	97.5	26,000
Ind., Ill., Ky	434,900	424,000	97.5	319,000	75.2	2,942,000	3,124,000	.....	160,000	6,226,000	3,863,000	341,400	328,200	96.1	82,000
Okla., Kans., Mo	459,300	391,500	85.2	195,000	49.8	3,083,000	788,000	.....	850,000	4,721,000	2,821,000	257,400	238,100	92.5	48,000
Inland Texas	315,300	186,700	59.2	91,000	48.7	1,146 000	75,000	.....	206,000	1,427,000	2,134,000	117,300	95,100	81.1	23,000
Texas Gulf	555,000	542,000	97.7	390,000	72.0	5,318,000	190,000	....	207,000	5,715,000	9,156,000	506,500	495,500	97.8	81,000
Louisiana Gulf	146,000	142,000	97.3	91,000	64.1	1,163,000	192,000	.....	32,000	1,387,000	3,319,000	74,400	74,400	100.0	13,000
North La.,—Ark	89,300	79,000	88.5	43,000	54.4	156,000	29,000	.....	52,000	237,000	506,000	29,500	25,500	86.4	10,000
Rocky Mountain	152,000	138,000	90.8	32,000	23.2	1,076,000	.....	.....	13,000	1,089,000	443,000	71,400	68,100	95.4	6,000
California	915,100	866,100	94.6	428,000	49.4	12,140,000	.....	.....	2,650,000	14,790,000	100,248,000	197,700	197,700	100.0	49,000
TOTALS WEEK: November 26, 1932	3,856,300	3,545,500	91.9	2,126,000	60.0	31,619,000	11,525,000	1,270,000	4,670,000	49,084,000	132,526,000	1,999,100	1,906,600	95.4	437,000
November 19, 1932	3,856,300	3,595,300	93.2	2,103,000	58.5	30,841,000	11,258,000	1,525,000	4,740,000	48,364,000	133,346,000	1,999,100	1,906,600	95.4	436,000
Below are set out estimates of Crude Runs to Stills and Motor Fuel Stocks on B. of M. Basis for Week Nov. 26, 1932 compared with certain Nov. 1931 Bureau figures.															
Estimate B. of M. basis Week Nov. 26, 1932				2,200,000	(d)	32,220,000	13,270,000		4,670,000	50,160,000					460,000
U. S. B. of M. November 1931 Figures:—					11/1	33,084,000	13,865,000		3,490,000	50,439,000					
November 1931 Daily Average Crude Runs				2,388,000	11/30	35,103,000	13,395,000		3,497.000	51,995,000	November 1931 Daily Average Cracked Prod				501,000

(a)Stocks at refineries, except in California district, which includes stocks of finished gasoline and engine distillate at refineries, at water terminals and at sales distributing stations and any amounts in transit thereto.
(b)By districts, East of California only. In California, bulk terminal and in transit stocks are included under "At Refineries" heading. See note (a)
(c)Estimated. Includes motor fuel in pipe lines and unblended natural gasoline at refineries and plants, also blended M F. at plants.
(d)Estimated to permit comparison with A. P. I. Economics Report which is on Bureau of Mines basis.

of the year. Several fields are considerably over their allowables, and the most recent tendency among the "rebels" has been to over-produce even more than the average of a few weks ago.

What to do with the Kettleman Hills problem has been a ticklish question. Kettleman North Dome Association believes that because of its high potential, it should be allowed more than the designated portion of the 54,000 barrels. Smaller operators think all producers should take a full 10 per cent cut.

Long Beach is running over its allowable by about 10,000 barrels, while Santa Fe Springs is about 8000 barrels over its allotment. These two fields have always caused some trouble, but the overage is now higher than it was a few weeks ago. Two or three other Los Angeles basin fields are showing excesses.

Such a small state overproduction would be classed as negligible under normal conditions in the industry. Now even a daily excess of 25,000 barrels is a burden no two or three companies want to carry.

Many companies that have been hewing to the line for two years are showing some signs of weakening. They think that every operator should take his part of the curtailment burden. It has been impossible to convince several Los Angeles Basin operators of the benefits to be derived from curtailment. The result has been steady excesses at Santa Fe Springs and Long Beach.

Stocks have been reduced little during the year, and the burden is getting heavy, according to the two or three companies carrying most of the storage. Current production is satisfying all needs, while the stocks on hand are awaiting a market. The 170,000,000-barrel load is at least 70,000,000 barrels too heavy.

Comparison of Permits Granted for New Wells

	For week ending Dec. 3	Total this month	Total this year	Total this date last year	1931 year total
Arkansas	1	1	25	34	34
California	9	9	326	328	342
Louisiana	9	9	406	295	309
Kansas	10	10	402	428	475
Michigan	5	5	173	99	110
Oklahoma	21	21	936	769	842
Texas	145	145	6485	6381	6981
Total	200	200	8753	8334	9093

Two Oklahoma School Land Leases Sold By Board

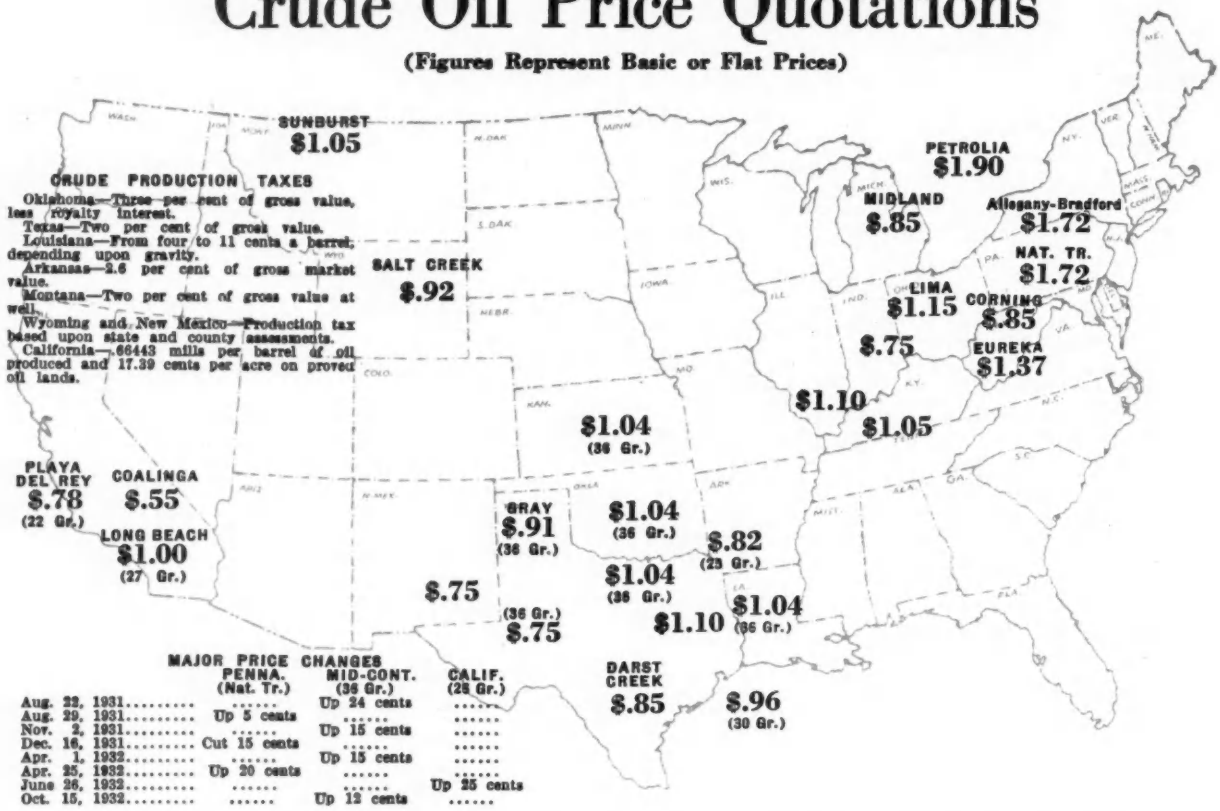
Oklahoma City.—Oil and gas leases on two tracts of school land brought a total of $16,171 in a sale by the Oklahoma School Land Commission. Shell Petroleum Corporation purchased SW Section 16-17n-4w, Logan County, at $6011 and Hargrove Hudson of Tulsa was highest bidder on Section 16-18n-3e, Payne County, paying $10,160 for the 640 acres.

Summarized Review of Week's Field Results

State—	Completions	Oil wells	Gas wells	Failures	Initial prod.
Arkansas	1	0	0	1	0
California	6	5	0	1	7,125
Illinois	0	0	0	0	0
Indiana	2	0	1	1	0
Kansas	17	7	1	9	989
Kentucky	12	6	0	6	255
Louisiana	16	4	1	11	1,275
Michigan	6	5	0	1	560
Mississippi	1	0	1	0	0
New Mexico	1	0	0	1	0
New York	5	5	0	0	20
Ohio	9	3	5	1	64
Oklahoma	29	14	1	14	12,595
Pennsylvania	18	14	1	3	39
Texas	133	104	1	28	609,996
W. Virginia	4	0	4	0	0
Miscellaneous	2	2	0	0	32
Totals	262	169	16	77	632,950

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (25 Gr.)
Aug. 22, 1931	.....	Up 24 cents	.....
Aug. 29, 1931	Up 5 cents	.....	.....
Nov. 2, 1931	.....	Up 15 cents	.....
Dec. 16, 1931	Cut 15 cents	.....	.....
Apr. 1, 1932	.....	Up 15 cents	.....
Apr. 25, 1932	Up 20 cents	.....	.....
June 26, 1932	.....	.....	Up 25 cents
Oct. 15, 1932	.....	Up 12 cents	.....

Official Postings and Differentials *(Revised to December 2, 1932)*

CALIFORNIA: (Effective June 26, 1932).

Signal Hill, Seal Beach, Alamitos Heights, Huntington Beach, Olinda-Brea Canon, Torrance, and Richfield: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 69 cents; 21 gravity 74 cents; 22 gravity 79 cents; 23 gravity 84 cents; 24 gravity 89 cents; 25-25.9 gravity 93 cents, top posting for Torrance and Richfield; 26-26.9 gravity 97 cents, top price for Seal Beach, Alamitos Heights and Huntington Beach: 27-27.9 gravity $1.00; 28-28.9 gravity $1.03, the top price for Olinda Brea Canon; 29-29.9 gravity $1.06; and 30-30.9 gravity $1.09, the Signal Hill top posting.

Inglewood: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 71 cents; 21 gravity 77 cents; 22 gravity 82 cents; 23 gravity 87 cents; 24-24.9 gravity 92 cents, the top price.

Playa Del Rey: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 69 cents; 21 gravity 74 cents; 22 gravity 78 cents; 23 gravity 82 cents; 24 gravity 86 cents; 25 gravity 91 cents; 26-26.9 gravity 96 cents, the top price. Field gathering charges of 5 cents a barrel.

Athens, Rosecrans and Dominguez: 24-24.9 gravity 89 cents; 25-25.9 gravity 93 cents; 26 gravity 97 cents; and 27-27.9 gravity $1.00 with three cents additional for each degree gravity upward, ending at 32-32.9 gravity $1.15.

Elwood Terrace: 33-33.9 gravity $1.04 and 6 cents more for each additional degree of gravity, ending with 37-37.9 gravity $1.28, all prices f.o.b. ship.

Whittier and LaHabra: 14 to 19.9 gravity 65 cents; 20-20.9 gravity 68 cents; 21 gravity 72 cents; 22 gravity 77 cents; 23 gravity 83 cents; and 24-24.9 gravity 89 cents, the top price.

Montebello: 14 to 20.9 gravity 65 cents; 21-21.9 gravity 67 cents; 22 gravity 70 cents; 23 gravity 73 cents; 24 gravity 76 cents; 25-25.9 gravity 80 cents, the top price.

Coyote Hills: 14 to 20.9 gravity 65 cents; 21-21.9 gravity 66 cents; 22 gravity 70 cents; 23 gravity 76 cents; 24 gravity 81 cents; 25 gravity 86 cents; 26 gravity 90 cents; 27 gravity 94 cents; 28 gravity 98 cents; 29 gravity $1.02; and 30-30.9 gravity, $1.05, the top price.

Santa Fe Springs: 24-24.9 gravity 73 cents; 25 gravity 79 cents; 26 gravity 84 cents; 27 gravity 89 cents; and 28-28.9 gravity 94 cents, with 4-cent differential for each degree of gravity upward to 35-35.9 gravity $1.22.

Newhall, McKittrick and Kern River: 14 to 19.9 gravity 55 cents.

Midway-Sunset, Elk Hills and Buena Vista: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 59 cents; 21 gravity 63 cents; 22 gravity 69 cents; 23 gravity 75 cents; 24 gravity 81 cents; 25-25.9 gravity 87 cents and 5-cent differential for each additional degree gravity ending with 30-30.9 gravity $1.12.

Lost Hills: Same as Midway-Sunset up through 25-25.9 gravity 87 cents, then 26-26.9 gravity 91 cents; 27 gravity 94 cents; 28 gravity 99 cents; 29 gravity $1.02; and ending 30-30.9 gravity $1.05.

Coalinga: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 59 cents; 21 gravity 62 cents; 22 gravity 65 cents; 23 gravity 68 cents; 24 gravity 72 cents; and ending 25-25.9 gravity 75 cents.

Wheeler Ridge: 14 to 19.9 gravity 55 cents; 20-20.9 gravity 57 cents; and 21-21.9 gravity 60 cents, with 3 cents more for each additional degree of gravity, ending 25-25.9 gravity 72 cents.

Oklahoma, Kansas, North Texas: (Effective October 15, 1932).

Below 28 gravity (Magnolia) 79 cents; below 29 gravity (others) 88 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at $1.12.

North Texas: (Effective October 15, 1932).

Below 28 gravity (Magnolia) 79 cents; below 29 gravity (others) 88 cents, with two-cent differential upward, ending 40 gravity and above, $1.12.

Texas Panhandle: (Effective October 15, 1932).

Gray County: Below 35 gravity: 87 cents, with differential of 2 cents for each degree to 40 gravity and above, 99 cents.

Carson and Hutchinson Counties: Below 35 gravity: 75 cents with differential of 2 cents for each degree to 40 gravity and above which is posted at 87 cents.

West Texas: (Effective October 15, 1932).

Crane-Upton, Crockett, Ector, Howard-Glasscock, Pecos and Winkler Counties, Texas and Lea County, New Mexico: 75 cents.

Southwest Texas: (Effective October 15, 1932).

Refugio Heavy: 80 cents.

Refugio Light: (Same as Gulf Coast—see below).

Gulf Coast: (Effective October 15, 1932).

Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity: 90 cents, with differential of 1 cent for each degree to 36 gravity which is $1.02 then 2 cent differential to 40 and above which is $1.10.

Mirando: 90 cents; Salt Flat: 85 cents; Darst Creek: 85 cents; Pettus: $1.00; Markham: Same as Gulf Coast.

Conroe, Texas: (Effective July 18, 1932).

Two-cent differential applies, beginning 35-35.9 gravity, 90 cents, ending 40 gravity and above, $1.

East Texas: (Effective October 15, 1932).

Flat Price: $1.10.

North Louisiana and Arkansas: (Effective October 15, 1932).

Caddo, Homer, Haynesville, Bull Bayou, Sabine, Cricton, DeSoto, El Dorado, Cotton Valley, Sarepta, Cartersville: Below 25 gravity 80 cents with differential of 2 cents for each degree beginning with 25 gravity and ending with 40 and above. Top price $1.12 a barrel.

Smackover: 75 cents.

Rocky Mountain States: (Effective June 1, 1932).

Salt Creek: Below 29 gravity 76 cents; 29-29.9 gravity 78 cents with differential of 2 cents each degree to 40 and above. Top price $1.00.

Elk Basin and Grass Creek: $1.10; Big Muddy: 98 cents; Lance Creek: $1.15; Rock Creek: 90 cents; Sunburst: $1.05; Osage: 98 cents; Cat Creek: $1.20; Pondera: 90 cents; Hogback, New Mexico: 80 cents.

Mid-Western States: (Effective April 11, 1932).

Lima: $1.15; Indiana: 75 cents; Illinois: $1.10; Princeton: $1.10; Wooster: $1.25; Western Kentucky: $1.05.

Pennsylvania: (Effective October 3, 1932).

Bradford District: $1.72; National Transit Oil: $1.72; Southwest Pennsylvania Pipe Line Oil: $1.42; Eureka Pipe Line Oil: $1.37; Buckeye Pipe Line Oil: $1.22; Corning Crude: 85 cents.

Michigan: (Effective July 13, 1932), Midland: 85 cents a barrel. Muskegon: 76 cents to $1.00 a barrel.

Canada: (Effective Nov. 3, 1931).

Petrolia: $1.90; Oil Springs: $1.97.

Performance

made NATIONAL *America's Standard Drill Pipe*

From the drilling of the first rotary well to the development of the latest field, consistent, all-round performance has earned and retained for NATIONAL Drill Pipe the complete confidence of practical operating men everywhere. The remarkable strength, the unusual toughness, the exceptional ductility, and the superior threads of NATIONAL A.P.I. Seamless Drill Pipe have given a grade of service unequalled by any other pipe.

Repeated shocks and unrelenting strains have proved beyond question that it will meet the most adverse conditions; higher and higher speeds have proved its stamina for the most advanced rotary practice; increased lengths of string have proved the soundness of its joints and the dependability of its performance in the deepest holes.

Our engineering service department will gladly cooperate with oil and gas companies on any drilling problem. Inquiries will be given prompt and careful consideration by engineers thoroughly familiar with all oil and gas fields.

NATIONAL TUBE COMPANY · PITTSBURGH, PA.

Subsidiary of United States Steel Corporation

NATIONAL A.P.I. SEAMLESS DRILL PIPE

Nearly 1000 *Gulf Coast Wells Drilled* Below 5000 Feet

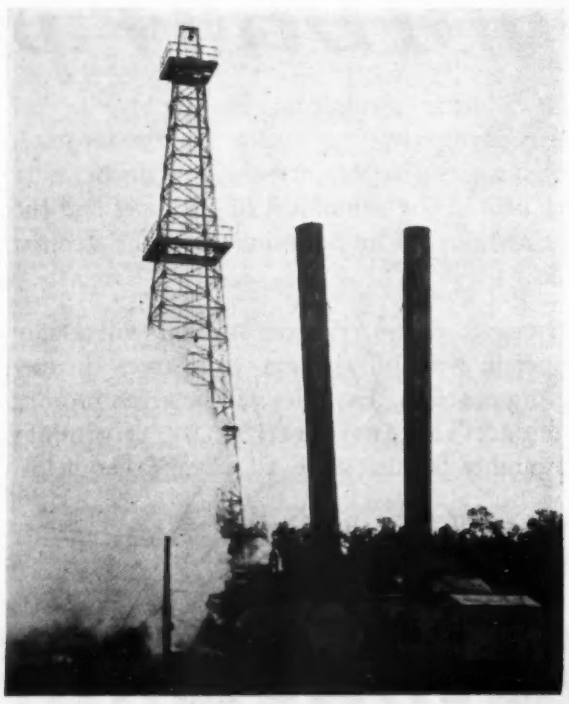
JACK LOGAN
Staff Representative

WHEN Gulf Production Company drilled Gladys City 49 at Spindle Top to 4718 feet in 1914 it reached a depth which was unprecedented in the salt dome country if not in all areas of rotary drilling, and at the same time set a record which continued unsurpassed for a long time. Even as much as 10 years later there had been very few wells drilled below 5000 feet along the Gulf Coast, and it was not until October, 1925, that the depth record for the area was set below 6000 feet. Not until 1926, moreover, was production established at depths greater than 5000 feet. At that time productive wells of such depth were completed around the flanks of the Spindle Top field, and they might well be thought of as ushering in the modern era of deep drilling on the coastal plains, an era which has brought deeper and deeper wells and increased producing depths in rapid succession until now, when the records on Gulf Coast deep drilling are led by an unproductive test which reached 9250 feet and a productive well which is 7926 feet deep.

As indicated in accompanying tabulations covering coastal operations up to a recent date, there have been two wells which were drilled below 9000 feet; nine which were drilled to depths of 8000 to 9000 feet; 35 which had depths of 7000 to 8000 feet; 236 with depths of 6000 to 7000 feet; and 696 ranging between 5000 and 6000 feet. Thus there have been nearly 1000 Gulf Coast wells which have been drilled below 5000 feet.

TWO previous articles in this series on deep drilling along the Gulf Coast have dealt only with exploration which has resulted in establishing or finding indications of deep production. This installment is not so limited but takes cognizance also of dry holes along with productive wells in showing the amount of deep drilling which has been done and the depths which have been reached. All wells which have gone below 7,000 feet are tabulated in a form giving important details, and another table indicates all fields, domes, and wildcat areas which have been the sites of drilling below 5,000 feet, while a third short tabulation lists fields and salt domes where no drilling has yet reached that level.

The fourth and final installment in this series will be of an engineering nature, pointing out the advancements in equipment and methods which have made possible the great depths now reached in drilling.



A drilling well at Rabb Ridge where prolific oil wells are completed in a sand horizon at 5100-5400 feet.

So recently as three years ago there had been only about 400 wells in the region which had been drilled below 5000 feet, as pointed out by this writer in THE OIL WEEKLY of October 4, 1929, beginning on page 68; and at that time the greatest depth which had been reached was 8150 feet, while the deepest producing well was 7290 feet deep.

A comparison of figures included in that article of three years ago with similar figures covering all operations to now will show impressively the great expansion of deep drilling which has occurred. Following is such a comparison:

Gulf Coast Deep Wells

Depth Reached	No. of wells Oct. 4, 1929	No. of wells Nov. 1, 1932
Below 5,000 Feet	400	978
Below 6,000 Feet	53	282
Below 7,000 Feet	6	46
Below 8,000 Feet	1	11
Below 9,000 Feet	..	2

The Gulf Coast may be divided logically into three separate major divisions: (1) the eastern portion, lying within Louisiana and designated as the Louisiana Gulf Coast; (2) the intermediate portion stretching from the Louisiana-Texas state line westward through Matagorda, Wharton, and Colorado Counties, and designated conveniently as the Texas Gulf Coast salt dome region, numerous domes being found therein; and (3) the

(*Continued on page* 31)

Gulf Coast Areas Where Wells Have Been Drilled Below 5,000 Feet

Area—	No. wells drilled to 5000-6000 ft.	No. wells drilled to 6000-7000 ft.	No. wells drilled to 7000-8000 ft.	No. wells drilled below 8000 ft.
Texas Gulf Coast: Salt Dome Region—				
Oil and Gas Fields.....	506	79	12	2
Unproductive, Known Salt Domes	4	3	1	..
Wildcat Areas	32	19	3	..
Total	542	101	16	2
Texas Gulf Coast: Trans-Salt Dome Region—				
Oil and Gas Fields.....	42	65	1	*2
Wildcat Areas	10	9	..	..
Total	52	74	1	*2
Louisiana Gulf Coast—				
Oil and Gas Fields	82	43	13	*7
Unproductive, Known Salt Domes	9	7	1	..
Wildcat Areas	11	11	4	..
Total	102	61	18	*7
Whole Texas-Louisiana Gulf Coast—				
Oil and Gas Fields	630	187	26	†11
Unproductive, Known Salt Domes	13	10	2	..
Wildcat Areas	53	39	7	..
Total	696	236	35	†11

*Includes one well drilled below 9000 feet.
†Includes two wells drilled below 9000 feet.

A.—Texas Gulf Coast: Salt Dome Region

Area—	No. wells drilled to 5000-6000 ft.	No. wells drilled to 6000-7000 ft.	No. wells drilled to 7000-8000 ft.	No. wells drilled below 8000 ft.
Oil and Gas Fields—				
1. Allen, Brazoria County..	13	..	..	..
2. Barbers Hill, Chambers County	208	24	2	1
3. Big Hill, Jefferson County	2	1	..	..
4. Blue Ridge, Fort Bend County	5	1	..	..
5. Boling, Fort Bend-Wharton Counties	5	..	..	..
6. Buckeye, Matagorda County	..	..	1	..
7. Clay Creek, Washington County	1	..	..	..
8. Conroe, Montgomery Co., as of Oct. 20, 1932...	31	..	..	..
9. Esperson, Liberty Co...	2	5	2	..
10. Fannett, Jefferson Co....	11	2	..	..
11. Goose Creek, Harris Co.	3	4	..	..
12. Hankamer, Liberty Co..	2	1	1	..
13. High Island, Galveston County	13	2	..	..
14. Hockley, Harris County	1	1	..	..
15. Hull, Liberty County ..	4	..	..	..
16. Humble, Harris County..	54	1	1	1
17. Lost Lake, Chambers Co.	1	1	1	..
18. Manvel Brazoria County	1	1	1	..
19. Markham, Matagorda Co.	1	1	..	..
20. Moss Bluff, Liberty Co.	10	5	2	..
21. Mykawa, Harris County	5	3	..	..
22. Nash, Brazoria-Fort Bend Counties	8	3	..	..
23. North Dayton, Liberty County	10	..	..	..
24. Orange, Orange County	9	1	..	..
25. Orchard, Fort Bend Co.	1	1	..	..
26. Pierce Junction, Harris County	20	3	..	..
27. Port Neches, Orange Co.	..	4	..	..
28. Rabb Ridge, Fort Bend County, as of Oct. 20, 1932	30	..	..	..
29. Raccoon Bend, Austin-Waller Counties	2	..	..	..
30. Spindle Top, Jefferson Co., data is incomplete, but it is understood over 100 wells have been drilled below 5000 feet	48	13	..	..
31. Stratton Ridge, Brazoria County	2	..	1	..
32. Sunshine Pool, Polk Co.	1	..	..	..
33. West Columbia, Brazoria County	2	1	..	..
Total	506	79	12	2
Unproductive, Known Salt Domes—				
1. Clemens, Brazoria County	1	2	..	..
2. Danbury, Brazoria Co...	1	..	..	..
3. Davis Hill, Liberty Co...	1	..	..	..
4. Hawkinsville, Matagorda County	1	..	..	..
5. Long Point (Sulphur producing dome), Fort Bend County	..	1	..	..
6. San Felipe, Austin-Waller Counties	..	..	1	..
Total	4	3	1	..
Wildcat Areas—				
1. Austin County	1	..	..	..
2. Brazoria County: Austin Bayou	..	1	..	..
Fresno prospect	..	..	1	..
Near Nash	1	1	..	..
3. Chambers County: Cove prospect	..	1	..	..
Jackson Ranch district	1	1	..	..
Others	1	..	..	..
4. Colorado County: Rock Island	1	..	..	..
5. Fort Bend County: Beasley prospect	1	..	..	..
Clodine prospect	..	1	..	..
Needville prospect	..	1	..	..
6. Harris County: Cedar Bayou prospect	2	2	..	..
Deer Park prospect ...	..	2	..	..
Genoa prospect	2	..	..	..
Hanks prospect	1	..	..	..
Ogburn prospect	1	..	..	..
Others	3	2	..	..
7. Jefferson County: Cheek prospect	..	2	..	..
Hamshire prospect ...	..	..	1	..
La Belle prospect ...	1	..	..	..
McFadden prospect ..	..	..	1	..
Others	2	1	..	..
8. Liberty County: Devers prospect	1	..	..	..
Heiskell prospect	1	..	..	..
Others	1	..	..	..
9. Matagorda County: Citrus Grove prospect ...	..	2	..	..
Sheppards Mott prosp.	3	1	..	..
10. Montgomery County ...	6	..	..	..
11. Orange County: Vidor prospect	..	1	..	..
12. San Jacinto County: Shepherd prospect	1	..	..	..
13. Tyler County	1	..	..	..
Total in Wildcat Areas	32	19	3	..

B.—Texas Gulf Coast: Trans-Salt Dome Country

(Beginning on east with Jackson and Calhoun Counties and extending southwest through Victoria, Goliad, Refugio, Aransas, Bee, San Patricio, Live Oak, McMullen, Jim Wells, Nueces and Kleberg Counties. The Laredo district, including Duval, Webb, Zapata, Jim Hogg, Brooks and Starr Counties are not included. While some wells have been drilled in those counties below 5000 feet, the bulk of the drilling has been only to shallower depths.)

Area—	No. wells drilled to 5000-6000 ft.	No. wells drilled to 6000-7000 ft.	No. wells drilled to 7000-8000 ft.	No. wells drilled below 8000 ft.
Oil and Gas Fields—				
1. Agua Dulce, Nueces Co.	2	2	..	..
2. Aransas (Gas), San Patricio County	2	2	..	..
3. Gulf-O'Connor (Gas), Refugio-Goliad Counties	2	..	..	..
4. Keeran, Victoria County	2	2	..	..
5. Kingsville, Kleberg Co...	1	..	..	..
6. Lucas, Live Oak County	2	1	..	..
7. Marianna, Victoria-Refugio Counties	3	3	..	..
8. Nursery (Gas), Victoria County	..	1	..	..
9. Pettus District, Bee-Goliad Counties	3	2	..	..
10. Refugio-Fox, Refugio County	19	49	1	*2
11. Saxet, Nueces County..	4	2	..	..
12. White Point, San Patricio County	2	1	..	..
Total	42	65	1	*2

(*Continued on page* 28)

Oil field operators amazed

DOWELL

brings production

IN THE chemical treatment of rock to increase the production of its own brine wells, The Dow Chemical Company developed a method of increasing the flow from producing structures.

Acquaintances in oil fields adjacent to Dow brine wells heard of the process. They wondered if it would do the same to oil pay sands as it did to brine well producing strata.

Tests were made by technicians from the Dow laboratories. Results were startling. Production was increased in some wells up to 34 times.

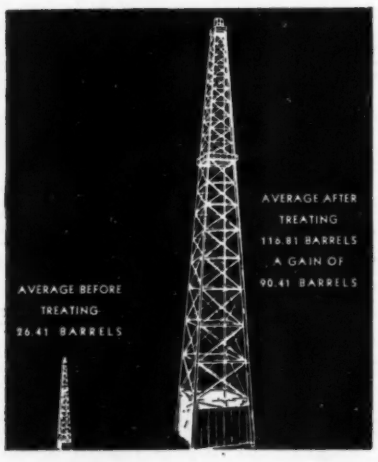
One hundred consecutive wells tested showed increases in all but three. Many of these wells increased fifteen to twenty times the production after receiving the Dowell treatment and in the course of two to three weeks, leveled off to 500 to 1,000 per cent increase.

Dry holes in proven fields have been brought in for good production. Unprofitable wells have been made profitable.

Chemical science has found a way to go down into the ground, reach out its fingers through tight rock in all directions, into porous structure to increase oil recovery.

Great Benefits Bring Attendant Danger

In public announcement of the availability of this scientific service to the oil fields of the country, a warning is necessary.



97% of Wells Treated by Dowell Service Show Increase

The great success of Dowell Service applications has revived all the old acid and caustic treatments which were used as far back as 1896 and which are no more effective now than they were then.

Bootleggers in raw acid treatments are springing up like mushrooms, dumping various quantities of different acids into valuable wells, without relation to the geology, chemistry or physics involved in scientific rock reducing. Treatments are being offered by glib promoters without regard to the destruction of casings, tubing, casing seats or other equipment.

The oil well services developed in The Dow Chemical Company laboratories are operated solely by Dowell Incorporated, because they must be used as a scientific engineering service under direction of trained engineers.

Dowell Services, including Dow Patented Products and Processes, will be confined to the use of Dowell Incorporated to protect the well owner. Dowell Service will not be available for wells which have been treated by others.

Scientific Diagnosis The Basis of Dowell Service

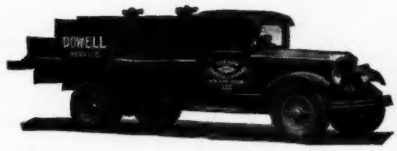
Under no condition will wells be serviced by Dowell Incorporated, until after scientific diagnosis of the individual well, chemically, physically and geologically. On this basis, Dowell Service is offered.

DOWELL INCORPORATED • MIDLAND, MICHIGAN

Sole operator of The Dow Chemical Company Products and Processes to Increase Oil Production

at new development!

SERVICE



increase in practically all cases

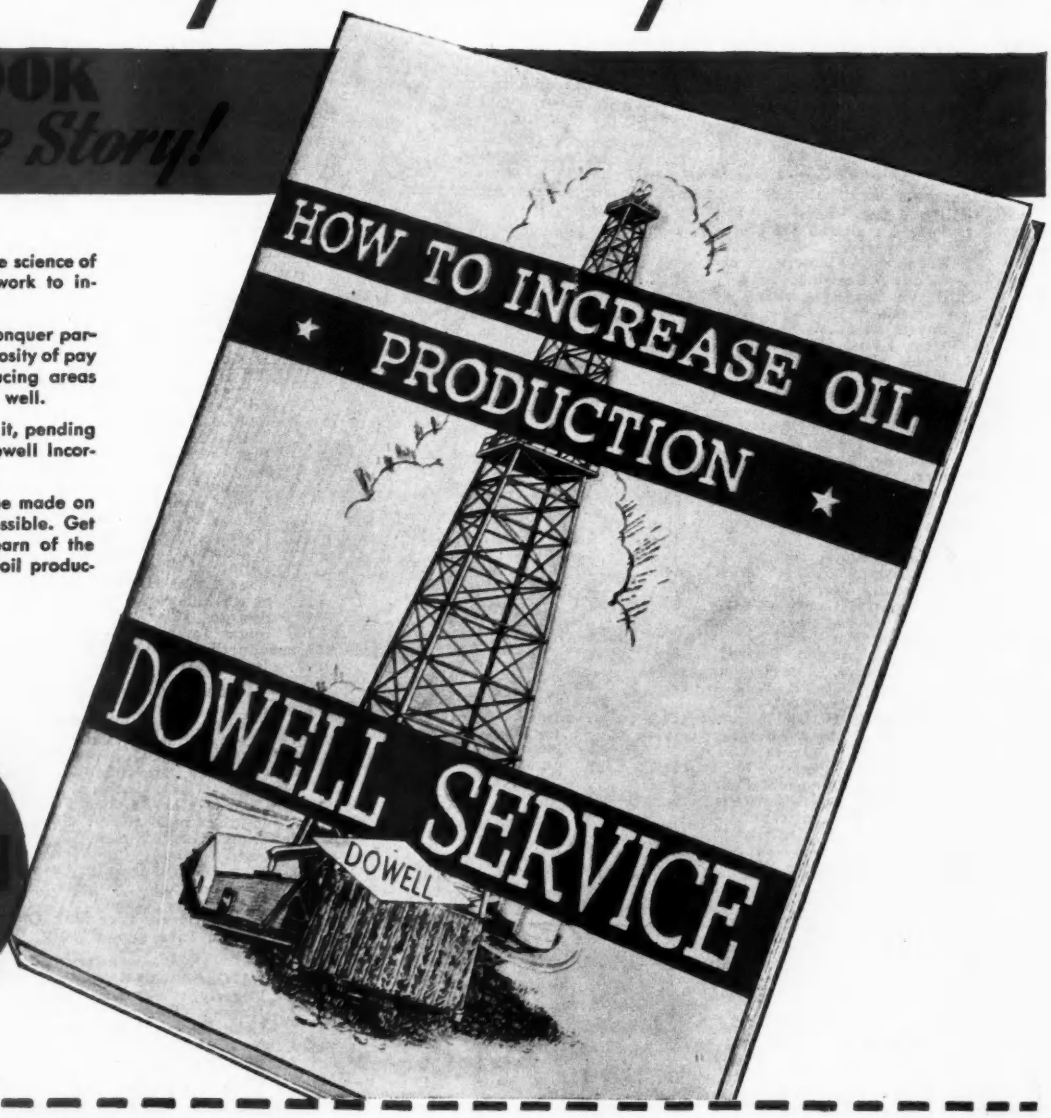
This **BOOK** *tells the Story!*

Its pages explain how the science of chemistry has gone to work to increase oil production.

It describes methods to conquer paraffin, to open up the porosity of pay sands, to enlarge producing areas for free flow of oil to the well.

Get this book and read it, pending the establishment of Dowell Incorporated, in your fields.

Diagnosis of wells will be made on request as rapidly as possible. Get the book today and learn of the newest developments in oil production practice.



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MIDLAND, MICHIGAN

Gentlemen: I am interested in your chemical processes to increase Oil Production. Please send me the book described above.

Name_____ Address_____

City_____ State_____

Gulf Coast Areas Where Wells Have Been Drilled Below 5,000 Feet

(*Continued from page 25*)

	No. wells drilled to 5000-6000 ft.	No. wells drilled to 6000-7000 ft.	No. wells drilled to 7000-8000 ft.	No. wells drilled below 8000 ft.
Wildcat Areas—				
1. Bee County: Cadiz prospect	1	..	..	..
South of Beeville	3	3	..	..
2. Calhoun County, Chocolate Creek Area	1	1	..	..
3. Goliad County: Parks area	1	..	..	..
4. Jackson County: Lolita prospect	..	1	..	..
5. Jim Wells County: Premont prospect	..	1	..	..
Near Ben Bolt	..	1	..	..
6. Kleberg County	1	..	..	..
7. Nueces County: north Robstown	1	..	..	..
8. San Patricio County: Edroy area	1	..	..	..
9. Victoria County: Telferner prospect	1	1	..	..
Bloomington prospect	..	1	..	..
Total for wildcat areas	10	9	..	..
TOTAL: All Areas in Trans-Salt Dome Country	52	74	1	*2

*Includes one well drilled below 9000 feet.

C.—Louisiana Gulf Coast

Oil and Gas Fields—				
1. Anse La Butte, St. Martin Parish	2	2	..	..
2. Bayou St. Elaine, Terrebonne Parish	2	..	..	..
3. Bayou Blue, Iberville Parish	2	2	..	..
4. Bayou Bouillon, St. Martin Parish	2	1	..	..
5. Black Bayou, Cameron Parish	2	2	..	..
6. Caillou Island, Terrebonne Parish	1	..	..	..
7. Cameron Meadows, Cameron Parish	2	..	..	..
8. Choctaw, Iberville Par..	1	1	..	..
9. Darrow, Ascension Par..	1	..	..	..
10. Dog Lake, Terrebonne Parish	1	2	..	..
11. East Hackberry, Cameron Parish	3	4	..	1
12. Fausse Pointe, Iberia Parish	1	..	..	..
13. Gueydan, Vermilion Par.	..	2	..	1
14. Hackberry, Cameron Par.	8	1	1	..
15. Iowa, Calcasieu-Jefferson Davis Parishes	..	3	..	..
16. Jennings, Acadia Parish.	6	..	4	4
17. Lake Barre, Terrebonne Parish	..	1	..	..
18. Lake Washington, Plaquemine Parish	2	..	..	..
19. Leesville, La Fourche Parish	1	..	..	..
20. Lockport, Calcasieu Par.	19	12	3	..
21. Sorrento, Ascension Par.	2	..	..	..
22. Starks, Calcasieu Parish	3	1	1	..
23. Sulphur, Calcasieu Par...	15	4	..	*1
24. Sweet Lake, Cameron Parish	3	4	4	..
25. Welsh, Jefferson Davis Parish	..	1	..	..
26. White Castle, Iberville Parish	3	..	..	..
Total	82	43	13	*7
Unproductive, Known Salt Domes—				
1. Avery Island, Iberia Par.	1	..	..	..
2. Calcasieu Lake, Cameron Parish	1	..	..	..
3. East Bay Junop, Terrebonne Parish	1	1	1	..
4. Four Isle, Terrebonne Parish	..	1	..	..
5. Garden Island Bay, Terrebonne Parish	1	..	..	..
6. Napoleonville, Assumption Parish	..	1	..	..
7. Section 28, St. Martin Parish	4	2	..	..
8. Vermilion Bay, Iberia Parish	1	2	..	..
Total	9	7	1	..

	No. wells drilled to 5000-6000 ft.	No. wells drilled to 6000-7000 ft.	No. wells drilled to 7000-8000 ft.	No. wells drilled below 8000 ft.
Wildcat Areas—				
1. Acadia Parish: Egan Prospect	1	..	..	..
Three miles nw Iota..	..	1	..	..
One mile west Crowley	2	..	..	..
2. Calcasieu Parish: near Lake Charles	..	1	..	..
3. Cameron Parish: Mallard Bay prospect	..	..	1	..
Johnsons Bayou prosp.	1	..	1	..
4. Jefferson Parish: Barataria Prospect	..	..	1	..
5. Jefferson Davis Parish: 1½ miles sw of Welsh	1	..	..	..
Roanoke prospect	3	1	..	..
6. Lafayette Parish: 1 mile s Carencro	..	1	..	..
7. La Fourche Parish: Bay Marchand Prospect	..	1	..	..
8. St. Martin Parish: St. Martinsville Prospect..	..	1	..	..
9. St. Mary Parish: 2 mi n Patterson	..	1	..	..
Avoca Prospect	..	1	..	..
Wax Lake Prospect ..	1	..	..	..
Glenwild Prospect	1	..	..	..
Two mi se Charenton.	..	..	1	..
10. Terrebonne Parish: Minor Prospect	..	1	..	..
One mile sw Houma ..	..	1	..	..
Point au Fer Prospect	..	1	..	..
11. Vermilion Parish: near Abbeville	1	..	..	..
Total	11	11	4	..
Total all areas along La.-Gulf Coast	102	61	18	*7

*Includes one well drilled below 9000 feet.

AREAS WHICH OFFER DEEP POSSIBILITIES IN WHICH NO WELLS HAVE BEEN DRILLED BELOW 5000 FEET

A.—Texas Gulf Coast: Salt Dome Region

Oil and Gas Fields—

1. Ariola, Hardin County.
2. Batson, Hardin County.
3. Big Creek, Fort Bend County.
4. Big Hill, Matagorda County.
5. Brenham, Washington County.
6. Coyle-Concord (Gas), Colorado County.
7. Damon Mound, Brazoria County.
8. Hoskins Mound, Brazoria County.
9. Rockland, Jasper County.
10. Saratoga, Hardin County.
11. Sour Lake, Hardin County.
12. South Liberty, Liberty County.
13. Spurger (Gas), Tyler County.
14. Sugar Land, Fort Bend County.

Unproductive, Known Salt Dome—

1. Bryan Heights (sulphur field), Brazoria County.

B.—Texas Gulf Coast: Trans-Salt Dome Region

Oil and Gas Fields—

1. Armagosa (Gas), Jim Wells County.
2. Cabeza Creek, Goliad County.
3. Calliham, McMullen County.
4. Crowther, McMullen County.
5. Edna (Gas), Jackson County.
6. Goliad (Gas), Goliad County.
7. Hords Creek (Gas), Goliad County.
8. King (Gas), Nueces County.
9. Sandia (Gas), Jim Wells County.
10. Slick, Goliad-DeWitt Counties.
11. Stratton (Gas), Nueces County.
12. Tuleta, Bee County.
13. Three Rivers, Live Oak County.
14. Worth, Live Oak County.

C.—Louisiana Gulf Coast

Oil and Gas Fields—

1. Edgerly, Calcasieu Parish.
2. Houma (Gas), Terrebonne Parish.
3. Lake Pelto, Terrebonne Parish.
4. New Iberia, Iberia Parish.
5. Pine Prairie, Evangeline Parish.
6. Port Barre, St. Landry Parish.
7. Vinton, Calcasieu Parish.

Unproductive, Known Salt Domes—

1. Bayou de Glaise, Iberville Parish.
2. Belle Isle, St. Mary Parish.
3. Chacahoula, LaFourche Parish.
4. Cote Blanche, St. Mary Parish.
5. Jefferson Island (Sulphur production), Iberia Parish.
6. Venice, Plaquemines Parish.
7. Weeks Island, Iberia Parish.

Wells Drilled Below 7,000 Feet in Gulf Coast Region

(As of November 1, 1932)

TEXAS GULF COAST: SALT DOME REGION

Well and field in which located—	Drilling started (approx.)	Drilling ended (approx.)	Final string of casing	Results	Depth reached (feet)
1. Benedum & Trees' W. L. Foley 1, Humble.....	4- 1-30	7- 1-30	9⅝" at 5700	Dry hole	8181
On sw flank Humble dome, Harris Co., J. Ryan sur. Had oil show at 6625 ft. Abandoned when drill stem stuck in shale. Note particularly short time of about three months consumed in drilling.					
2. Yount-Lee Oil Co.'s Chambers County Agricultural Ass'n 4, Barbers Hill	4- 7-29	9-11-29	7⅝" o.d. 5840	Dry hole	8150
On se flank Barbers Hill dome, Chambers Co., Wm. Bloodgood sur. Only two casing strings used, first being 10" at 629 ft. Heaving shale had been logged from 8000 to 8150 ft. when drilling was stopped in that treacherous formation. This job was completed without twist-off, junk in hole, or mechanical trouble of any kind, and entirely without accidents to workers.					
3. United North & South Development Co.'s Stoddard 1, Buckeye	10-10-31	8-25-32	6" o.d. at 7765	Oil Well	7951
In Lot 53, Buckeye townsite, J. C. Keller sur, Matagorda Co. Was drilled as wildcat, opening new field. Although drilled to 7951 ft, the well was plugged back to 7926 ft, and it then came in August 31, 1932, flowing about 2000 barrels 39 gravity pipe line oil daily from Marginulina (Oligocene) sand at 7808-7926 ft. It is the deepest productive well of the whole Texas-Louisiana Gulf Coast, and the deepest in Texas outside of the Big Lake field, West Texas.					
4. Yount-Lee Oil Co.'s Moores Bluff Corp. 3, Esperson	4-10-30	11-20-30	.....	Plugged back	7822
Blew in from 7592 ft flowing much gas and spray of oil, but was deepened and drill stem stuck in shale at 7822 ft. Plugged back and completed as small oil well at 2836 ft. On e flank Esperson field, Liberty Co.					
5. Humphreys Corp.'s Scott 2, Barbers Hill	3-20-30	10- 5-30	7⅝" at 7023	Dry hole	7697
On n flank Barbers Hill dome, Chambers Co., H. Griffith sur. By swabbing produced about 15 bbls. oil daily along with much salt water at 7296 ft. Later deepened and abandoned at 7697 ft in heaving shale.					
6. Humble Oil & Ref. Co.'s McFaddin 1, wildcat	10-20-30	6- 1-31	13" at 1940	Dry hole	7663
On McFaddin geophysical prospect, 8 mi e Big Hill, in T.&N.O. sur, sect. 234. Abandoned in shale at 7663 ft.					
7. The Texas Co.'s O. F. Ewing 1, Manvel	3- 9-30	4- 5-31	6⅝" at 7148	Gas well	7648
In H. N. Little sur, Manvel field, Brazoria Co. Tested gas and salt water at 5520 ft, and at 7470-7648 ft showed 1500 pounds pressure for short time, the gas being from McElroy (Jackson) sand. When pressure dropped off well was abandoned. Other casing used included 9⅝" at 4750 ft and 13⅜" at 1250 ft.					
8. Rycade Oil Corp.'s & Amerada Pet. Corp.'s Seaburn 2, Stratton Ridge	10- 1-30	4-20-31	13⅜" at 1295	Dry hole	7624
At Stratton Ridge dome, Brazoria Co. Abandoned in shale.					
9. The Texas Co.'s J. H. Murdock 1, wildcat	9- 1-30	1-13-31	13⅜" at 1500	Dry hole	7556
In Chas. Heywood sur, near Fresno, Brazoria Co., on a torsion balance prospect. No important showings reported. Abandoned in sandy shale.					
10. Yount-Lee Oil Co.'s Kirby 1, Barbers Hill	7- 1-29	10-26-29	.....	Dry hole	7502
In Wm. Hodges sur, Barbers Hill dome, Chambers Co. Abandoned in shale.					
11. Pure Oil Co.'s Lost Lake 5, Lost Lake	7-15-30	2-20-31	8⅝" at 5105	Dry hole	7461
Abandoned at 7461 ft in cap rock which had been logged first at 5136 ft.					
12. Cranfill-Reynolds Co.'s Vajdak 1-A, Esperson	9- 1-29	7- 1-30	7" at 5700	Oil well	7386
In C. C. Brunson sur, e flank Esperson field, Liberty Co. Made gas with spray of 42 gravity oil at 5707-5752 ft. Deepened into sands at 6990-7386 ft and swabbed, the well yielded about 100 bbls 45 gravity oil daily and considerable gas, but after about three months was abandoned. Casing used included 9⅝" at 4180 ft.					
13. Gulf Production Co.'s McFaddin A-4, Moss Bluff....	..-..-..	1-15-32	6⅝" at 5960	Dry hole	7375
On se flank Moss Bluff dome, Liberty Co. Abandoned when drill pipe stuck in sticky shale.					
14. Shell Pet. Corp.'s C. T. Heisig 1, wildcat	4-16-29	10-10-29	9⅝" at 5341	Dry hole	7305
In Sect. 86, T.&N.O. sur, 2 mi n Hamshire, Jefferson Co. Had slight oil shows at 7120 ft and at 5075 ft. First of two casing strings used was 12½" at 1462 ft. Located on geophysical prospect. Abandoned in brittle shale.					
15. Empire Gas & Fuel Co.'s Kunze 1, San Felipe	10- 1-30	5-20-31	9⅝" at 5187	Dry hole	7200
On w flank San Felipe dome, Austin Co. Abandoned in shale.					
16. Gulf Production Co.'s Ezzell 1, Hankamer	6-15-30	2- 1-31	7" at 5792	Dry hole	7095
On w side Hankamer field, Liberty Co., in Levi Barrow sur. Tested oil at 2800 and 3800 ft in field's established producing horizons, and had showings at 5400 and 5800 ft and at final depth.					
17. Humble Oil & Refining Co.'s Breeden 1, Moss Bluff	9-15-30	12-20-30	.....	Dry hole	7064
On nw flank Moss Bluff dome, Liberty Co., in B. M. Spinks sur. Had gas show at 5880-5905 ft. Abandoned in hard sand.					
18. Humble Oil & Refining Co.'s Glass 1, Humble	.....	11-20-29	.....	Dry hole	7019
On s flank Humble dome, Harris Co. Abandoned in sticky shale.					

(*Continued on page* 30)

Wells Drilled Below 7,000 Feet in Gulf Coast Region

(*Continued from page 29*)

TEXAS GULF COAST: TRANS-SALT DOME REGION

Well and field in which located—	Drilling started (approx.)	Drilling ended (approx.)	Final string of casing	Results	Depth reached (feet)
1. Edwin M. Jones' Josephine Mitchell 1-B, Refugio ....-..-..		6- 1-32	5¾" at 9131	Plugged back	9131
In s part Refugio field, Refugio Co. Produced oil originally from 5441 ft before deepening. Had oil sands at 6378-6430 ft, 6875-6904 ft, and at 9114-9131 ft. With screen at bottom of 5¾" casing set in sand at latter horizon, the well started flowing a little oil but soon made salt water and sulphur water, and it was decided to plug back. This is deepest hole in Texas.					
2. L. L. Smith, Inc.'s, Moss-Heard 1, Refugio ....-..-..		11- 1-30	9⅝" at 5700	Dry hole	8114
In Block 111, Refugio townsite, Refugio field, Refugio Co.					
3. Humble Oil & Refining Co.'s Kohler 50, Kohler	11-17-30	8-31-31	9⅝" at 6020	Dry hole	7725
In Kohler field, sect. 164, Duval Co. Had slight show of oil with salt water at 6020-6087 ft as well as gas showing at 1816-1821 ft in regular producing horizon of field. Besides the final string, casing used included 13⅜" at 1905 ft and 20" at 85 ft.					
4. Independent Oil & Gas Co.'s Jerry Reilly 6, Refugio ....-..-..		10-15-30	6⅝" at 6443	Dry hole	7618
Plugged back and sidetracked to test 3600-ft sand.					

LOUISIANA GULF COAST

1. Union Sulphur Co.'s Fee 762, Sulphur	9- 2-30	4-25-31	6⅝" at 5860	Plugged back	9250
On sw flank of Sulphur dome, Calcasieu Parish, Sect. 29-9s-10w. Well was completed originally 11-3-30 as an 830-bbl. oil well at 4789 ft, but deepening was started 1-10-31, with 1300 ft 12½" casing and 4770 ft of 9⅝" in the hole. Salt was encountered at 5864 ft and drilling continued in salt to final depth, a total of 3386 ft of salt being logged, a record salt penetration for the Gulf Coast. This well holds the distinction of having reached the greatest depth recorded in state of Louisiana and also along the Louisiana-Texas Gulf Coast. It was plugged back and completed as an oil well at 5080 feet.					
2. Yount-Lee Oil Co.'s Houssiere-Latrielle 9, Jennings	7- 2-30	3-20-31	7" at 7125	Dry hole	8900
On se flank Jennings field, Acadia Parish, sect. 47-9s-2w. Tried to blow out while drilling at 8613 ft. Did blow out while drilling at 8666 ft, making oil and gas, but also developed salt water flow. Abandoned in shale. Casing included 15¼" at 900 ft.					
3. The Texas Co.'s Rayne Heirs 5, Jennings	8-25-29	8- 1-30	.....	Dry hole	8730
On s flank Jennings field, Acadia Parish, in sect. 40-9s-2w. Had successful sidetracking job at 8138 ft. Abandoned in shale.					
4. Yount-Lee Oil Co.'s Houssiere-Latrielle 10, Jennings	7- 1-31	3-15-32	5" at 8640	Dry hole	8698
On se flank Jennings field, Acadia Parish, in sect. 47-9s-2w. Had several showings below 7000 ft. Set 22 ft. screen in sand at 8676-8698 ft, but well would not flow and was abandoned.					
5. Union Sulphur Co.'s No. 1, Gulf Land Co. Fee land, Pure Oil Co. lse., East Hackberry	1-20-32	7- 1-32	.....	Dry hole	8324
On nw flank East Hackberry dome, Cameron Parish, in sect. 11-12s-10w. With bottom of hole at 8324 ft in sand showing oil, drill stem was stuck, and sidetracking brought fishing job in new hole at 7423 ft, resulting in abandonment.					
6. Yount-Lee Oil Co.'s Crowley Oil & Mineral Co. 4, Jennings ....-..-..		11- 5-29	5-3/16 at 7544	Dry hole	8145
On se flank Jennings field, Acadia Parish, in sect. 48-9s-2w. Tested salt water at 7475 ft. Abandoned in brittle shale.					
7. Pure Oil Co.'s Southwest Louisiana Land Co. 2, Gueydan	9- 1-31	12-15-31	9⅝" at 3460	Dry hole	8007
At Gueydan dome, Vermilion Parish, in sect. 4-12s-1w. Abandoned in shale. Drilling consumed brief period of only 3½ months.					
8. The Texas Co.'s South Coast Co. 1, wildcat	5-22-30	10-15-30	12½" at 1630	Dry hole	7851
On geophysical prospect 2 mi se Charenton and 4 mi n Franklin, being in sect. 41-14s-10e. Abandoned in sandy shale.					
9. Federal Petroleum Co.'s Hebert 1, Hackberry	6-16-30	9-20-30	6⅝" at 6431	Dry hole	7834
On se flank Hackberry dome, Cameron Parish, in sect. 33-12s-10w. First of two casing strings used was 12½" at 1174 ft. Drilling time only about three months.					
10. Magnolia Petroleum Co.'s Sweet Lake Land Co. 2, Sweet Lake..	2-20-31	8-15-31	15½" at 1660	Dry hole	7714
On edge of Sweet Lake field, Cameron Parish, in sect. 5-13s-7w. Abandoned in sandy shale.					
11. Yount-Lee Oil Co.'s W. H. Stark 1, wildcat	9-10-29	1-20-30	10" at 1200	Dry hole	7657
At Johnsons Bayou prospect in sect. 1-15s-15w, Cameron Parish. Abandoned in hard sand.					
12. Humble Oil & Refining Co.'s Delaware Fur Co. 1, wildcat...	6-17-30	11-25-30	9⅝" at 5000	Dry hole	7629
On Barataria geophysical prospect, 3 mi nw Lafitte, Jefferson Parish, in sect. 2-16s-23e. Abandoned in sandy shale.					
13. Magnolia Petroleum Co.'s Sweet Lake Land Co. 1, Sweet Lake..	6-15-30	10- 1-30	12½" at 1465	Dry hole	7511
On edge of Sweet Lake field, Cameron Parish, in sect. 36-12s-8w. Abandoned in sandy shale. First of two casing strings was 20" at 60 ft.					
14. Pure Oil Co.'s Yount-Lee 5, Sweet Lake ....-..-..		2- 1-32	5" at 7416	Abandoned	7456
At Sweet Lake field in sect. 12-13s-8w. Produced 630,000 bbls oil from 5718 ft; was then deepened to 7456 ft, where it tested salt water and was abandoned.					
15. Yount-Lee Oil Co.'s Houssiere-Latrielle 7, Jennings	7-10-29	1- 4-30	7" at 7100	Oil well	7447
On se flank Jennings field, Acadia Parish, in sect. 47-9s-2w. Came in flowing 1500 bbls 23 gravity oil daily at 7447 ft, and is deepest productive well of Louisiana Gulf Coast.					

(*Continued on page 31*)

Wells Drilled Below 7,000 Feet in Gulf Coast Region

(*Continued from page* 30)

LOUISIANA GULF COAST—Continued

Well and field in which located	Drilling started (approx.)	Drilling ended (approx.)	Final string of casing	Results	Depth reached (feet)
16. Yount-Lee Oil Co.'s Houssiere-Latrielle 8, Jennings	1-15-30	6-15-30	7⅝" at 7050	Oil well	7420
On se flank Jennings field, Acadia Parish, in sect. 47-9s-2w. Came in flowing 85 bbls 35 gravity oil per hour through ⅜" and ¼" chokes after setting of 10 joints screen.					
17. Pure Oil Co.'s Yount-Lee 10, Sweet Lake	11-10-30	4-25-31	9⅝" at 6830	Oil well	7387
Near center of Sweet Lake field, Cameron Parish, in sect. 12-13s-8w. Completed about 5-25-31, flowing 1150 bbls daily through ⅜" choke. First two strings of casing were 18⅝" at 135 ft and 13⅜" at 2885 ft.					
18. Yount-Lee Oil Co.'s Simms Fee 1, Jennings	10-15-29	2-15-30	.....	Dry hole	7310
On west side Jennings field, Acadia Parish, in sect. 45-9s-2w. Abandoned after drill stem was stuck in sandy shale at 7310 ft.					
19. Yount-Lee Oil Co.'s Houssiere-Latrielle 6, Jennings	..-..-..	6- 1-29	5-3/16" at 7225	Oil well	7290
On se flank Jennings field, Acadia Parish, in sect. 47-9s-2w. Completed 6-3-29, flowing 5000 bbls 30 gravity pipe line oil daily through ¼" and 3/16" chokes. First of Jennings deep producers, and subsequently had good production history.					
20. Shell Petroleum Corp.'s A. Marceaux 1, wildcat	9-25-29	2-15-30	9⅝" at 5995	Dry hole	7229
On Mallard Bay geophysical prospect in sect. 32-12s-3w, Cameron Parish. Abandoned in sandy lime. Casing used included 13⅜" at 2465 ft.					
21. Gulf Refining Co. of La.'s Industrial Lumber Co. 13, Starks ...	3- 1-29	8-20-29	.....	Dry hole	7207
On west edge Starks dome, Calcasieu Parish, in sect. 25-9s-13w. Abandoned in heaving shale.					
22. Shell Petroleum Corp.'s Miller Estate 1, Lockport	2-17-29	10- 2-29	6⅝" at 6622	Dry hole	7201
On west edge Lockport field, Calcasieu Parish. Abandoned in limey shale. First two of three casing strings were 12½" at 1463 ft and 9⅝" at 5082.					
23. Union Sulphur Co.'s Martha Moss 1, Lockport	6-15-30	12- 5-30	.....	Dry hole	7119
On edge of Lockport field, Calcasieu Parish. Plugged back to 6622 ft but tested salt water and was abandoned.					
24. The Texas Co.'s East Bay Junop 2, East Bay Junop	8-15-30	2-15-31	.....	Dry hole	7034
On East Bay Junop salt dome in sect. 21-21s-14e. Abandoned in sand rock.					
25. Union Sulphur Co.'s Martha Moss 2, Lockport	1-25-31	4-20-32	6⅝" at 6503	Abandoned	7030
At Lockport field in sect. 8-10s-9w, Calcasieu Parish. Completed originally as 2500-bbls oil well at 6529 feet on 4-20-31, but was deepened a year later, finding oil showings at 6650 and 6725 ft before being abandoned in shale at 7030 ft.					

(*Continued from page* 24)

southwestern portion, beginning with Jackson and Calhoun Counties, and extending on down the coast through a group of additional counties, that division being here designated as the Texas Gulf Coast trans-salt dome region, since the oil structures found within it differ for the most part from those farther east in not being established as salt domes, although it is possible that at least some of them may actually be very deep-seated salt domes. These three classifications have been used in the accompanying tabulations and statistics because of the differing conditions in the separate areas and in order to make convenient a more detailed interpretation of the statistics.

Of the above three divisions, the Texas Gulf Coast salt dome region has been the outstanding scene of deep drilling, furnishing 661 out of the total of 978 wells of the Gulf Coast which have been drilled below 5000 feet, its contribution being thus over two-thirds of the total. The Louisiana Gulf Coast ranks second, having had 188 wells drilled below 5000 feet; while the southwestern extremity of the Texas Gulf Coast has already furnished 129 wells over 5000 feet deep, despite having become an area of deep exploration only a short time ago.

Texas: Salt Dome Region

In the Texas Gulf Coast salt dome region over one-third of the drilling below 5000 feet has been concentrated in one premier "deep field," Barbers Hill, Chambers County. That field was an illusion and a snare for coastal operators for many years until 1928, when deep production around the flanks of the dome lifted it suddenly into the role of a major producing area. Various productive horizons have been established below 5000 feet, along with some others at somewhat lesser depths, and the wells which have been drilled below the 5000-foot level aggregate 235, among which were 27 drilled below 6000 feet, three below 7000 feet, and one below 8000 feet.

Other fields of the Texas salt dome region which have been prominent scenes of deep exploration include Spindle Top and Humble, among the older fields, each of which has had over 50 wells drilled below 5000 feet; and Conroe and Rabb Ridge, new fields, each of which had furnished over 30 wells by the middle of October, 1932, exceeding the depth of 5000 feet, with numerous additional productive wells of similar depth in prospect for both areas.

As indicated in an accompanying tabulation, wells have been drilled below 5000 feet in the Texas Gulf Coast salt dome country at more than 75 different localities, including 33 established oil and gas fields, six unproductive but definitely established salt domes, and wildcat areas of 13 counties. There are, moreover, 14 "shallower" fields and one unproductive salt dome where no wells have been drilled so deep as 5000 feet, although those areas naturally offer important deep exploration possibilities, considering the successes which have attended deep drilling elsewhere under similar conditions.

The greatest depth which has been reached in the Texas Gulf Coast salt dome region is 8181 feet, the level at which drill stem was stuck in shale about July 1, 1930, in Benedum & Trees' W. L. Foley 1, southwest flank test at Humble. The

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greatest depth at which a productive well has been completed is 7926 feet, the bottom of the hole in United North & South Development Company's Stoddard 1, discovery well of the Buckeye field, Matagorda County, which registered initial production of about 2000 barrels 39 gravity oil daily when it commenced flowing August 31, 1932.

Texas: Trans-Salt Dome Region

In that part of the Texas Gulf Coast lying southwest of the regular salt dome territory more than half of the drilling below 5000 feet has been in the Refugio field. Thus Refugio's position among "deep fields" of the trans-salt dome region is comparable with that of Barbers Hill in the salt dome country. After having produced only gas for nearly 10 years, Refugio began yielding oil from a 3700-foot horizon in 1928, and since then additional oil sands have been found at 5500 feet, 5800 feet, and 6500 feet, the latter proving particularly prolific, and having been the objective not only in new drilling but also in deepening operations.

The favorable results obtained in deep drilling at Refugio constituted a strong incentive for similar deep exploration in other areas of the trans-salt dome region, and in consequence deep oil horizons have been established in various fields which formerly produced only gas, while some entirely new oil or gas producing areas have been discovered.

Wells have been drilled below 5000 feet in 12 oil and gas fields of the trans-salt dome country and in a similar number of wildcat areas located in nine different counties. (See accompanying tabulations).) There are, on the other hand, 14 oil or gas producing areas within the same region where no wells have reached 5000 feet, although at least some of those fields offer important possibilities of deep production.

The greatest depth reached in the region beyond the salt domes (and at the same time in the whole State of Texas) is 9131 feet, the bottom of the hole in Edwin M. Jones' Josephine Mitchell 1-B, Refugio field, which flowed a little oil but soon began yielding sulphur water and salt water when drilled in July 10, 1932, following setting of screen in sand at 9114-9131 feet. The deepest productive wells of this division of the Gulf Coast are some oil producers about 6600 feet deep in the Refugio field.

Louisiana Gulf Coast

In the Louisiana division of the Gulf Coast the Lockport field stands out as having furnished the greatest amount of drilling below 5000 feet, more than 30 wells having gone past that level. Sulphur dome ranks second, with 20 such wells, Jennings third with 14, and Sweet Lake fourth with 11. Each of those fields has also had important oil production from depths greater than 5000 feet.

As shown in tables included herewith, wells have been drilled below 5000 feet along the Louisiana Gulf Coast at 45 different localities, including 26 established oil and gas fields, eight unproductive salt domes, and 21 wildcat areas in 11 parishes. There are, on the other hand, seven "shallower" oil and gas fields and seven unproductive salt domes, where no wells have been drilled so much as 5000 feet deep, although those fields and domes must be conceded to have possibilities of deep production.

The deepest hole which has been drilled along the Louisiana Gulf Coast (and at the same time along the whole Louisiana-Texas Gulf Coast and in the whole State of Louisiana) was the 9250-foot test, Fee 762, of Union Sulphur Company at Sulphur dome. After reaching that depth late in April, 1931, the well was plugged back and completed as an oil producer at 5080 feet. The greatest depth at which a productive well has been completed along the Louisiana Gulf Coast is 7447 feet, the bottom of the hole in Yount-Lee Oil Company's Houssiere-Latreille 7, one of a group of deep oil producers on the southeast flank of Jennings field. It was completed January 4, 1930, with an initial flow of 1500 barrels of 23 gravity oil daily.

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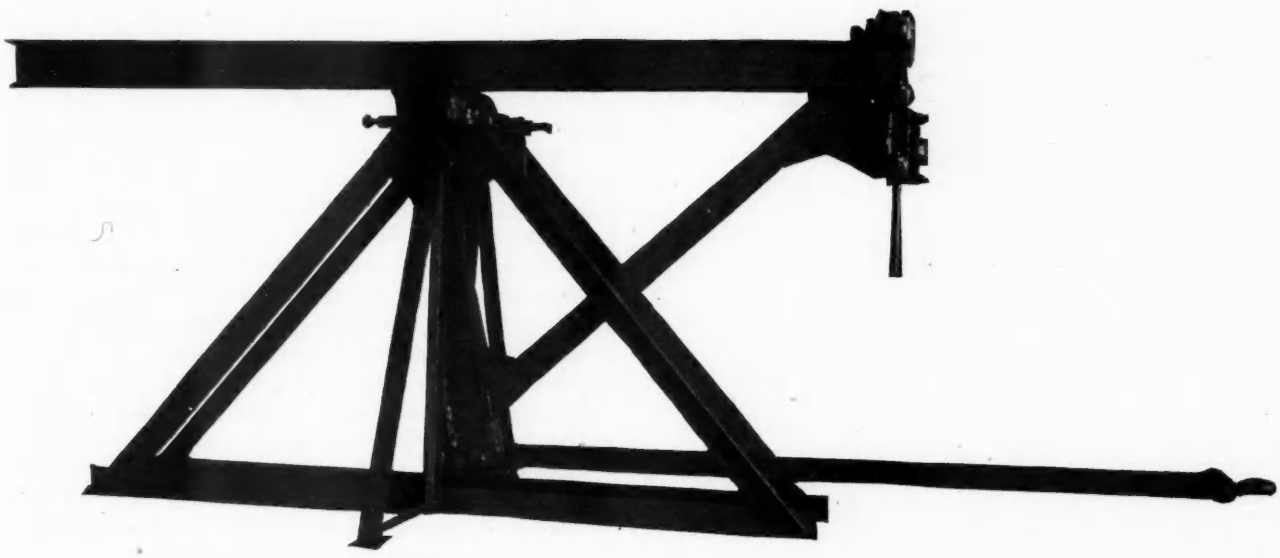

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HYDRODYNAMICS *of*

Reservoir Drainage *and Its Relation to* Well Spacing

H. D. WILDE, JR. and T. V. MOORE
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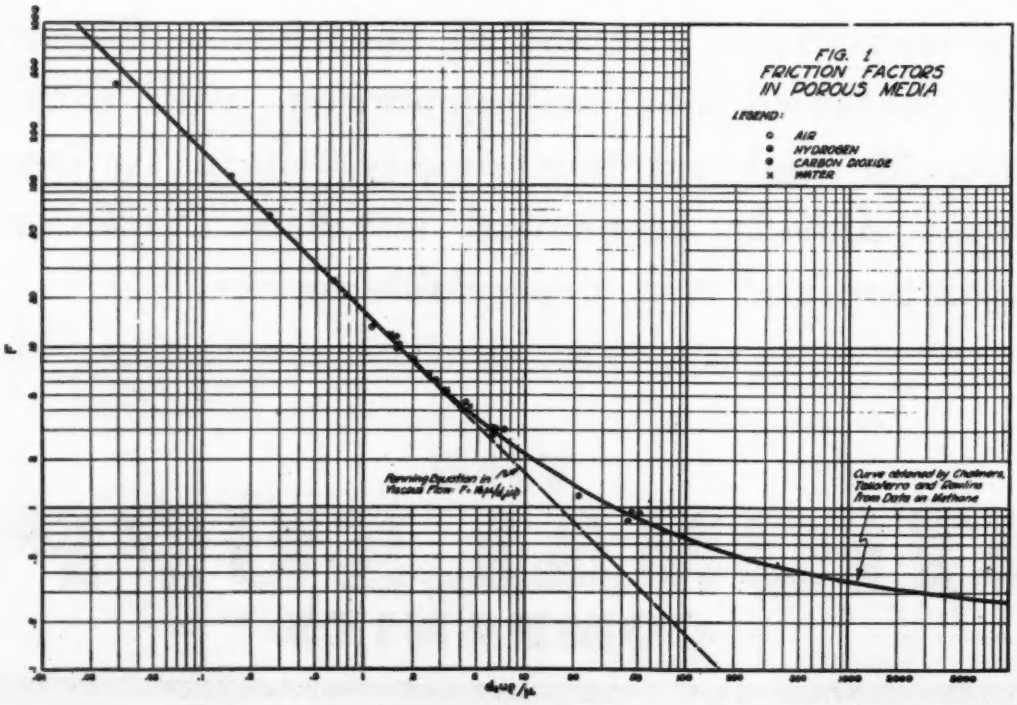
Part 1

Reservoir Drainage

OIL fields, in general, are bodies of fluids under pressure confined in a reservoir of porous rock. Obviously, the matter of drainage in an oil reservoir is a problem in hydrodynamics which is complicated by many factors which have not presented themselves heretofore in connection with the academic or practical problems of this science. That field of hydrodynamics especially applicable to oil reservoirs is one which few investigators have studied, and about which little is definitely known. However, certain principles can be recognized which will be of value in formulating qualitative ideas as to the manner in which oil flows into wells, and the expansion and development of these ideas will eventually lead to a quantitative solution to questions which now seem unanswerable.

A well, puncturing an oil reservoir, creates a region of low pressure into which fluids, including both liquids and gases from the surrounding sand body, being under higher pressure tend to flow. The rate at which the fluid enters the well is governed by the characteristics of the fluid itself, which is normally a mixture of oil and gas; by the permeability of the sand; and by the magnitude of the driving force, which is the differential pressure between the reservoir and the well. As oil is withdrawn from the surrounding reservoir, the depletion causes a reduction in pressure, the extent to which the pressure is lowered depending somewhat upon the nature of the oil and gas, but to a greater extent upon the gas-oil ratio. The region of reduced pressure tends to expand, reaching portions of the reservoir more and more remote from the well, and finally, if it should reach a body of either gas or water, the gas or water will begin to move toward the well. If control which tends to make the gas expand or the water intrude evenly and in an orderly manner is exercised, a highly desirable condition is brought about, which will increase the yield from the well. If, however, the gas or water is permitted to enter the well through long, uneven channels, the only result can be a waste of oil, due to the dissipation of the gas energy and the trapping of oil because of uncontrolled encroachment of water. When a number of wells are drilled into a field, the low pressure areas around each well expand and when these areas, which may be called the drainage areas, meet, the phenomenon of interference occurs. There is little doubt but that a proper well spacing will ordinarily call for some interference. However, the process of drainage goes on until the wells have either been taken by water, until the energy in the gas and oil has been consumed, or until the oil moves to the well through such great



THE determination of the proper well spacing for oil fields is one of the most important of the problems facing the production engineer, and at the same time is the problem about which there is but little reliable information available. Even in those rare cases in which the spacing of wells has not been governed entirely by lease requirements, little attention has been given to spacing wells in such a manner as to secure the maximum economic return upon the investment in the lease. Even today the most effective tools available for outlining a rational program of well spacing are rules of thumb and analogies to other fields thought to be similar. If, in the early stages of development of fields which are now depleted, adequate data had been taken on the characteristics of the producing reservoir and the operating conditions, it might now be possible to find some common denominator through which analogies to newer fields could be drawn with reasonable safety, but without this type of information, such comparisons are unrelaible. Today such data are being secured in many fields, and when these fields are exhausted, the engineer will have information available from which to draw more intelligent conclusions. But until such time as the actual performance of a large number of fields, of certain characteristics, and under controlled conditions, is known, the engineer who relies on experience alone can reach only the conclusion that every well and every field is governed by laws known only to itself, and he will be faced by as many problems as there are wells.

Meanwhile, the industry is suffering losses from either unnecessary development or unrecovered oil, due primarily to improper well spacing which in terms of dollars and cents would probably reach staggering proportions. And such losses will burden the industry until the time when the engineer can prepare with reasonable accuracy an economical well spacing program and production practice can be modified to permit such a program to be put into effect.

It appears that the hope of solution of the well spacing problem in the near future lies not so much in analyzing the incomplete data on older fields, as in a careful analysis of the problem from a theoretical viewpoint, based upon a sound knowledge of the principles of reservoir drainage, and checked wherever possible against field data. Such a theoretical analysis must, of necessity be broad in scope, for the well spacing problem is closely allied to nearly every phase of production engineering science, and its solution can come only from the solution to a multiplicity of other important problems dealing with reservoir drainage.

This paper, which was read before the Thirteenth annual meeting of the American Petroleum Institute at Houston, November 16, 1932, is divided into two parts. The first part discusses briefly and in a qualitative manner the mechanism of reservoir drainage, and then subdivides the general problem into its more important phases, in order that work along these lines may be more intelligently directed toward a quantitative solution. The second part of the paper discusses in considerable detail one phase of the problem upon which a large amount of work has already been done.

distances that the pressure available cannot maintain the production rate at an economical value.

Classification of Problem Into Phases

With this rough picture in mind, the following outline has been prepared, in which the various phases of the general problem are listed:

I. Flow of Simple Fluids Through Porous Media.

Obviously, any analytical approach to the problem of drainage in oil reservoirs must be based upon a sound knowledge of the fundamental laws governing the flow of fluids in reservoir rocks. Since mixtures of gas and oil are usually the fluids with which the problem of drainage is concerned, it appears that information on the flow of such mixtures would be most valuable, and hence, there may be some tendency to discount the value of knowledge concerning the flow of simple fluids. However, in any study of reservoir drainage, the characteristics of the porous medium must be known, and must be susceptible of determination both in the laboratory and from field data. A study of the behavior of simple fluids of known properties in typical reservoir rocks permits the calculation of important characteristics of the rocks themselves, such as permeability, which must be known before any attempt to solve the ultimate problem can be made. Furthermore, problems arise in which the flow of simple fluids is of great importance, and a clear understanding of the natural laws applicable to such cases is of utmost value. In the drainage of gas sands, and in the study of movement of water, the problem is primarily one in the flow of simple fluids. The development in East Texas has demonstrated the possibility of important fields in which the oil is undersaturated with gas, and in such fields, the laws of flow of simple fluids are more important than the laws of flow of mixtures.

II. Flow of Oil and Gas Mixtures in Porous Media.

Little work has been published which would be of value in formulating the laws of flow of oil and gas mixtures in porous media. Only sufficient data are available to demonstrate that the laws of simple fluids cannot be applied to the flow of mixtures. The extent to which the laws are similar is not known.

In capillary tubes, a peculiar phenomenon is observed in connection with the flow of an alternate series of liquid drops and gas bubbles. In such a case, pressure can be applied at one end of the tube without causing flow, the force being balanced by surface tension effects at the interface of the gas and liquid. Several engineers have held the belief that a similar static existence is encountered in the case of a mixture of oil and gas in a sand, but in the literature there are no data either to prove or to disprove this.

It is known, however, that the presence of gas will reduce markedly the permeability of a sand to a liquid. Aside from this, practically nothing is known about this important subject.

III. The Pressure Gradient About Oil or Gas Wells.

This phase of the problem involves a study of the distribution of pressure, that is, the nature of the pressure gradients, around a flowing well, and the rate of extension of low pressure areas caused by drainage to a single well. The conditions encountered in oil fields are such that an unsteady state of flow prevails, and this investigation must consider the complex mathematics applicable to this type of flow. The unsteady state is a type of flow in which fluid moves by virtue of its own expansion or compression, and the rates of flow and pressures vary with time. The steady state, on the other hand, is the condition in which the fluids moving through the system are supplied from some outside source, and are withdrawn from the system at a rate equal to the rate of supply. Under these conditions, the pressures and velocities at any point in the system are independent of time. The mathematics of the steady state are far simpler, but it is rare that conditions in oil

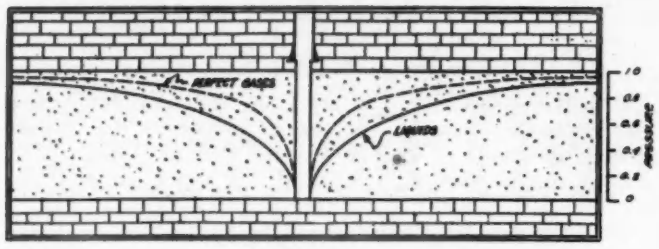


FIGURE 2
STEADY FLOW PRESSURE CURVES AROUND A WELL

fields are such as to permit the equations for steady state conditions to be applied. This problem, it will be observed, is largely one dealing with the mathematics of the unsteady state. In heat flow, the required equations have been worked out in a large number of cases. In the case of liquids, there is a sufficiently close analogy to heat to permit the use of the heat equation, but for gases and mixtures of oil and gas, little work has been done.

IV. Regional Drainage in Oil Reservoirs.

This phase deals with a study of the flow of large bodies of oil and gas from one part of a field to another, under the influence of pressure gradients established over a wide area by depletion of oil, water drive, large free gas areas, or other factors which do not depend primarily upon drainage to individual wells. It is especially important to understand the relation between regional drainage and the encroachment of water and changes in free gas areas, in order to develop sound principles to guide the producer in properly utilizing the energy in the water and gas associated with the oil.

It is felt that the only adequate laboratory for a study of this nature is an actual oil field, and that the most valuable data is accurate and complete information on field operations. The store of information which is being accumulated on subsurface pressures in many typical fields will be of utmost value in giving to the engineer a clearer understanding of these important matters, and eventually it may be possible to evaluate quantitatively the effect of water or gas drive under various operating conditions.

V. The Relation Between Pressure Drop and Depletion.

There exists in any reservoir containing fluids in which a water drive is absent a definite relationship, dependent upon the physical-chemical properties of the fluids, between the pressure and the quantities of fluids in the reservoir. Hence, if these physical-chemical characteristics of the oil, gas, and water are known, there is a relationship between pressure drop in the reservoir and depletion of oil and gas. This is important in translating pressure decline in reservoirs into terms of recovery. A discussion of this problem for the case in which there is no water drive and where the laws of perfect gases and Henry's solubility law apply has been published.[23] This work should be extended to include cases in which these assumptions cannot be made and where a water drive is present.

VI. The Determination of the Physical Constants of Oil Reservoirs from Field Data.

It appears that laboratory tests to determine the various physical constants required in work of this nature are inadequate because representative samples of the entire formation are almost impossible to secure and to this extent, are unreliable. Some means must be devised by which the necessary physical constants can be calculated from tests made on actual wells. It is well known that productivity factors, and the rate of change of pressure under changed operating conditions are dependent upon these various constants. The necessary equations must be derived which will enable these constants to be calculated and expressed in absolute terms from the data of field tests. Although some ideas have been developed along these lines, this work is far from complete.

VII. The Effect of Well Spacing on Ultimate Recovery.

The foregoing problems deal entirely with fundamental theory. Their solution would enable the engineer to determine the nature of the reservoir and the characteristics of the fluids therein, to predict the decline in pressure in various parts of the reservoir which would be experienced under a given system of production, and finally to estimate the production which would be obtained with a given pressure drop. In effect, with a knowledge of the principles previously discussed, it would be possible to evaluate the effect of well spacing upon ultimate recovery, for any type of typical field, giving due consideration to such important factors as water drive, the nature and number of producing sands, and methods employed in producing the oil. Whenever this can be done, the choice of proper spacing density and pattern for oil wells is a simple matter in economic balance, in which the expense of lease development is regulated to give the greatest economic return upon the capital invested. But it seems that without a knowledge of these principles, the development of oil fields must continue along the same haphazard lines which have been followed in the past.

It is obvious from the foregoing discussion that much work on fundamental principles remains to be done before the well spacing problem can be considered solved. Of the work done on these various phases, that done on the flow of simple fluids has been most fruitful and at the present time is the only phase of the problem that is sufficiently well understood to permit a detailed discussion. The remainder of the paper will be devoted to a detailed discussion of the steady state flow of

Table 1

Nomenclature

Symbol	Definition	Units
d	Diameter of capillary tube	Feet
d_e	Effective pore diameter of sand	Feet
g	Acceleration of gravity	Feet/second /second
q	Volume of fluid flowing per unit time at existing pressure	Cu. ft./second
q_o	Volume of fluid flowing per unit time at atmospheric pressure	Cu. ft./second
r_1	Outer radius of a drainage area in radial flow	Feet
r_2	Inner radius of a drainage area in radial flow, usually radius of a well	Feet
u	Linear velocity	Feet/second
u_o	Cubic feet, at atmospheric pressure, flowing per second per square foot of cross sectional area	Feet/second
F	Friction factor in Fanning equation	No units
K	Permeability of sand	Cu. ft./sec./ sq. ft./lb. sq. ft./ft.
L	Length	Feet
P	Pressure at any point	Lbs./sq. ft.
P_1	Upstream pressure	Lbs./sq. ft.
P_2	Downstream pressure	Lbs./sq. ft.
P_a	Atmospheric pressure	Lbs./sq. ft.
f(P)	Function of P. An expression for a quantity which bears a definite relationship to P, without showing the exact form of that relationship	
μ	Viscosity	Lbs./sec. ft.
ρ	Density of fluid at existing pressure	Lbs./cu. ft.
ρ_o	Density of fluid at atmospheric pressure	Lbs./cu. ft.
ϕ	Porosity	No units
C, C_1, C_2 c, m, n	Various empirical constants	

simple fluids in porous media. As the other phases of the problem become sufficiently well understood, they will be discussed in a similar manner.

Part 2

Equations for Steady Flow of Simple Fluids

The following discussion is confined entirely to the case of isothermal flow, for it is believed that because of the relatively low fluid velocities, and the large rock masses in actual reservoirs, little drop in temperature is encountered. Chalmers, Taliaferro, and Rawlins[1], in their work on the flow of natural gas through porous media, did observe some drop in temperature due to the Joule-Thompson effect, but their experiments were conducted at velocities higher than are likely to be encountered in actual practice, and it is believed that it is justifiable to neglect the deviations from isothermal flow.

Poiseuille's law for flow of the viscous or streamline type in circular conduits is given by the fundamental differential equation:

$$\frac{dP}{dL} = \frac{32\mu u}{gd^2}$$

(For nomenclature see Table 1)

This equation can be used for the flow of either liquids or gases. An integrated form, applying to liquids only, is commonly used, this being[6]:

$$P_1 - P_2 = \frac{32\mu uL}{gd^2}$$

These equations are especially applicable to flow in capillary tubes because the small diameters encountered permit very high velocities to be attained before the type of flow becomes turbulent, at which point the equation fails.

The Fanning equation [6,7,8] is of more general application since it is valid for either viscous or turbulent flow. The fundamental differential form of this equation is:

$$\frac{dP}{dL} = \frac{2F\rho u^2}{gd}$$

The linear velocity, u, can be conveniently replaced by the quantity of fluid flowing through the pipe by means of the expression:

$$u = \frac{4q}{\pi d^2}$$

The equation then becomes:

$$\frac{dP}{dL} = \frac{32\,F\rho q^2}{\pi^2 g d^5}$$

The friction factor, F, is a function of the ratio: $\frac{du\rho}{\mu}$

In the viscous flow range, F varies in such a manner that the Fanning equation and the expression of Poiseuille's law becomes identical.

In the case of liquid flow, q, the volume flowing is independent of pressure. The Fanning equation, when integrated, then becomes:

$$P_1 - P_2 = \frac{32FL\rho q^2}{\pi^2 g d^5}$$

However, in the case of a gas, the reduction in pressure resulting from the friction causes the gas to expand, which increases the linear velocity. If the perfect gas laws are assumed to apply, the following relationships hold:

$$q = \frac{q_o P_a}{P}$$

$$\rho = \frac{\rho_o P}{P_a}$$

Substituting these equations:

$$P\frac{dP}{dL} = \frac{32F\rho_o q_o^2 P_a}{\pi^2 g d^5}$$

Integrating:

$$P_1^2 - P_2^2 = \frac{64FL\rho_o q_o^2 P_a}{\pi^2 g d^5}$$

If the gas laws do not apply, a general equation may be derived as follows:

The relation between volume and pressure of the gas is given by the expression: $q = q_o f(P)$

Then: $\rho = \frac{\rho_o}{f(P)}$

Substituting in the Fanning equation:

$$\frac{dP}{f(P)} = \frac{32F\rho_o q_o^2}{\pi^2 g d^5} dL$$

$$\int_{P_2}^{P_1} \frac{dP}{f(P)} = \frac{32\rho_o q_o^2}{\pi^2 g d^5} \int_{L_2}^{L_1} FdL$$

This equation may be integrated by graphical methods.

In this connection, it is interesting to observe that the friction factor F, depends on the ratio $\frac{du\rho}{\mu}$. It will be observed that $u\rho$ is the mass velocity, or the number of pounds flowing per second per square foot of cross sectional area. If, as in the case of most fluids, viscosity is practically independent of pressure, the friction factor in a given conduit is dependent only on the mass velocity, and, therefore, in a conduit of constant cross section is constant at all points. Hence the expression $\int \frac{dP}{f(P)}$ under steady flow in such conduits is directly proportional to the distance along the path of flow.

The foregoing discussion has been confined to equations for the flow of fluids in circular pipes and capillary tubes. At this point, the flow of fluids through porous sand and the analogy between flow of this type and flow in capillary tubes will be considered. Experimental work has shown that the rate of flow through a sand body varies nearly, but not exactly, in direct proportion to the term $\int_{P_2}^{P_1} \frac{dP}{f(P)}$ which for liquids is simply $P_1 - P_2$ and for gases which obey the gas laws is $\frac{P_1^2 - P_2^2}{2P_a}$ and that the term $\int_{P_2}^{P_1} \frac{dP}{f(P)}$ is directly proportional to distances along the porous body parallel to the direction of flow. The

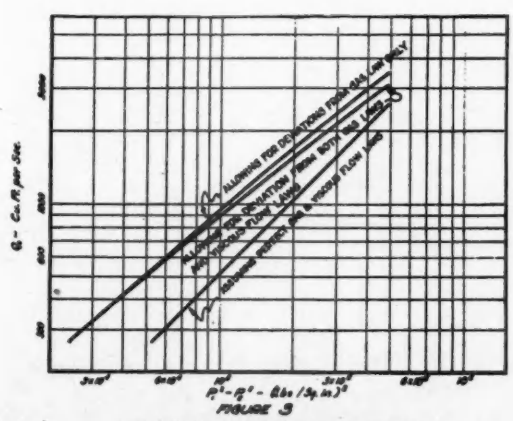
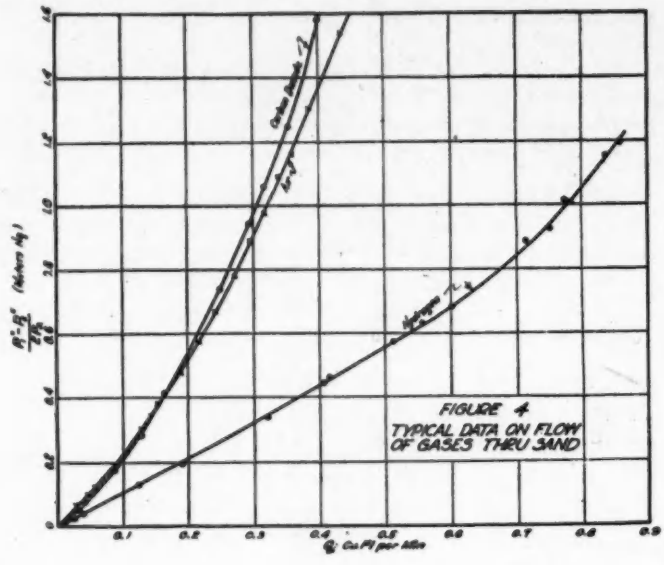

ALLOWING FOR DEVIATIONS FROM DARCY LAW ONLY
ALLOWING FOR DEVIATION FROM BOTH DARCY AND POISEUILLE FLOW LAWS
ASSUMING DARCY OR A VISCOUS FLOW LAW

FIGURE 3

CALCULATED FLOW CURVES ON HYPOTHETICAL GAS WELL



deviation from the linear type function is undoubtedly due to the excessive turbulence in the tortuous channels of the sand body, and to energy losses due to expansion and contraction of the fluid as it passes between the sand grains. However, it appears that similar laws apply to both porous sand bodies and capillary tubes.

Empirical equations have been commonly used to show the relation between pressure drop and rate of flow in sand bodies. One type of equation is, for liquids: $P_1 - P_2 = Cq^m$ and for perfect gasses $P_1^2 - P_2^2 = Cq_o^m$.

In these equations, the term $\int_{P_2}^{P_1} \frac{dP}{f(P)}$ is expressed as some power of the rate of flow.

Equations of this type are subject to the criticism that the slope of the flow curve at zero rate of flow is either zero or infinite; in other words, they may indicate that a small flow can be secured with a negligible drop in pressure. As a matter of fact because the energy losses and turbulence are negligible at low rates of flow, an empirical equation should, at low rates of flow, approach Poiseuille's equation for true viscous flow. Such an empirical equation has been used by Chalmers, Taliaferro, and Rawlins[3] in correlating their data on the flow of natural gas through sand. It has the form, for perfect gases,

$$P_1^2 - P_2^2 = C_1 q_o + C_2 q_o^m$$

The exponent m is nearly 2 as would be called for by the theory that the deviation is due to turbulence and contraction and expansion losses. Because of the deviation of these equations from Poiseuille's law, there is some difficulty in expressing the permeability of sand bodies. Permeability is defined as the rate of flow of a given fluid through a fluid area of porous medium per unit pressure drop per unit length. This definition tacitly assumes Poiseuille's law and although for practical purposes this assumption can be made, the slight deviations from this law cause the permeability to vary slightly with rate of flow. For example, it will be seen from Figure 4 that a certain sand was more permeable to carbon dioxide than to air at low rates of flow, while at higher rates, it was more permeable to air. There is need for an expression which will measure the facility with which fluids flow through a porous body which is dependent only upon the characteristics of the body itself. For this reason, the concept of effective pore diameter was developed.

The effective pore diameter of a sand is the diameter of a capillary tube through which a fluid will, under a given pressure gradient, flow at the same linear velocity as through the sand. It is purely an hypothetical quantity which is useful in making the well known laws of flow in capillaries more generally applicable to the flow of fluids in porous media. The following formula is derived for the calculation of the effective pore diameter from the empirical flow equation.

The empirical flow equation is of the form:

$$\int_{P_2}^{P_1} \frac{dP}{f(P)} = C_1 q_o + C_2 q_o^m$$

If the sand body be of length L,

$$\frac{dP}{f(P)dL} = \frac{C_1}{L} q_o + \frac{C_2}{L} q_o^m$$

This modification can be made because $\int \frac{dP}{f(P)}$ is directly proportional to L. Comparison to viscous flow in a capillary tube can, obviously, be made only at such rates of flow that the deviation from the viscous flow equation is negligible, that is, at low rates of flow. At infinitesimal rate of flow, the empirical equation reduces to:

$$\frac{dP}{f(P)dL} = \frac{C_1}{L} q_o$$

The mean area through which fluid may flow is the product of the gross area of the sand body and the porosity. The linear velocity of the fluid in the sand is, therefore,

$$u = \frac{q}{A\phi} = \frac{q_o f(P)}{A\phi}$$

Poiseuille's law states:

$$\frac{dP}{dL} = \frac{32\mu u}{g d_e^2}$$

Substituting q_o as a function of u,

$$\frac{dP}{f(P)dL} = \frac{32\mu q_o}{g d_e^2 A\phi}$$

By the definition of effective pore diameter, the terms $\frac{dP}{f(P)dL}$ must be equal in both the empirical equation and the expression of Poiseuille's law.

Then:

$$\frac{32\mu q_o}{g d_e^2 A\phi} = \frac{C_1}{L} q_o$$

Solving for d_e:

$$d_e = \sqrt{\frac{32\mu L}{gA\phi C_1}}$$

Perhaps the most useful application of effective pore diameter is in the extension of the use of the Fanning equation to flow through porous media, through which the deviation from the laws of viscous flow can be evaluated. Chalmers, Taliaferro, and Rawlins[3], in their work on the flow of natural gas, correlated the friction factor against the ratio $\frac{d_e u \rho}{\mu}$ for flow in a wide variety of porous bodies, ranging from No. 1 lead shot to 120-170 mesh sand. Later in this paper, some data on fluids other than natural gas will be presented which corroborates the correlation obtained by these investigators. The curve of friction factor against $\frac{d_e u \rho}{\mu}$ is presented in Figure 1. At low rates of flow, it approaches the curve for circular pipes, but diverges rapidly at higher rates, indicating com-

paratively large energy losses in the tortuous channels of the sand.

This correlation is valuable in laboratory methods of measuring permeability; it permits the expression of permeability to any desired single phase fluid whose density and viscosity are known, at any rate of flow, from data which can be obtained on convenient fluids, at convenient rates of flow in the laboratory.

The foregoing discussion has been confined to the theory of the steady flow of simple fluids through porous bodies of constant cross section; it would be interesting to consider the application of the formulae to steady radial flow[8,9]. Equations for the radial flow of liquids and perfect gases through media in which the laws of viscous flow hold have been available for many years. For liquids, the equation is:

$$P_1 - P_2 = cq_o \ln \frac{r_1}{r_2}$$

and for perfect gasses:

$$\frac{P_1^2 - P_2^2}{2P_a} = cq_o \ln \frac{r_1}{r_2}$$

The term c is a function of the permeability and sand thickness. Figure 2 shows steady flow pressure gradients around a well calculated from these equations for a liquid and a perfect gas. It is interesting to observe that the greatest part of the pressure drop occurs near the well bore, and that the gradient at the well is steeper in the case of the gas than in the case of the liquid. The pressures at the well and at the outer radius are the same in each of these hypothetical cases.

It must be remembered that in most cases of practical importance, true steady flow does not exist. Steady flow is a condition of flow in which the same quantity of fluid per unit time flows past all of the cylindrical surfaces concentric with the well. It presupposes that at no point in the reservoir does accumulation or depletion occur, and the application of the equation given imposes a further condition that all fluid flowing to the well be supplied from some extraneous source to the reservoir at the outer radius r_1, and is not obtained by the drainage or depletion of the reservoir itself. Important cases in which these conditions are fulfilled are unusual. The ordinary case of drainage in oil reservoirs involves the unsteady state, in which the fluid flowing into the well is supplied by expansion of fluid in the reservoir with consequent reduction in pressure. However, a discussion of the unsteady state is not within the province of this paper. It is, of course, of value to recognize that by proper choice of a hypothetical value for the outer radius, the equations for the steady state may be made to approximate closely the exact equations and for this reason the steady state equations, modified to allow for the deviations from the laws of viscous flow and to take into account the true relationship between pressure and volume for the fluids involved, will be presented.

A differential form of the Fanning equation convenient for the purpose of this derivation is:

$$dP = \frac{2F\rho u^2}{gd_e} dr$$

As in the previous case, the actual volume under the conditions in the reservoir bears the following relation to the volume at standard conditions: $q = q_o f(P)$
and at any radius, the area through which the flow occurs is:

$$A = 2\pi r H \phi$$

The velocity is then:

$$u = \frac{q_o f(P)}{2\pi r H \phi}$$

and the density is:

$$\rho = \frac{\rho_o}{f(P)}$$

Substituting in the Fanning equation:

$$\frac{dP}{f(P)} = \frac{F\rho_o q_o^2 dr}{2\pi^2 \phi^2 H^2 r^2 g d_e}$$

Integrating between the limits of the well radius and outer radius:

$$\int_{P_2}^{P_1} \frac{dP}{f(P)} = \frac{\rho_o q_o^2}{2\pi^2 \phi^2 H^2 g d_e} \int_{r_2}^{r_1} \frac{F\,dr}{r^2}$$

The indicated integrations may be performed graphically. The above equation is a general form which is applicable in all cases. If the flow is viscous, the equation is simplified as follows:

$$F = \frac{16\mu}{d_e u_o \rho_o} = \frac{32\mu\pi r H \phi}{d_e \rho_o q_o}$$

Then:

$$\int_{P_2}^{P_1} \frac{dP}{f(P)} = \frac{16\mu q_o}{\pi H \phi g d_e^2} \int_{r_2}^{r_1} \frac{dr}{r}$$

The permeability, in terms of the effective pore diameter is:

$$K = \frac{g\phi d_e^2}{32\mu}$$

Then:

$$\int_{P_2}^{P_1} \frac{dP}{f(P)} = \frac{q_o}{2\pi HK} \ln \frac{r_1}{r_2}$$

For liquids and perfect gases, the equation is further simplified and becomes identical with the common form of the steady flow equations previously given.

For liquids, $f(P) = 1$. Hence,

$$P_1 - P_2 = \frac{q_o}{2\pi HK} \ln \frac{r_1}{r_2}$$

for perfect gases, $f(P) = \frac{P_a}{P}$

and $$\frac{P_1^2 - P_2^2}{2P_a} = \frac{q_o}{2\pi HK} \ln \frac{r_1}{r_2}$$

In order to illustrate the relative effects of turbulence and the deviation of the gases from the perfect gas laws, the following example has been worked out. In it, the rate of flow is calculated as a function of back pressure on the face of the producing sand for a gas well, the conditions being as follows:

Gas: Ethane
Reservoir pressure: 700 lbs./sq. in. abs.
Temperature: 90°F.
Sand thickness: 50 ft.
Porosity: 20%
Effective pore diameter: 0.00005 ft.
Radius of well: 0.25 ft.
Outer drainage radius: 500 ft.

The problem was worked out on three sets of assumptions: first, that there was no deviation from either the perfect gas laws or the laws of viscous flow; second, that there was no deviation from the laws of viscous flow, but considering the deviations from the perfect gas laws; and third, making proper allowances for the deviation from both the gas laws and viscous flow laws. The results are presented in Figure 3. It will be

CHANGING A PUMP SAVED $59.18 PER DAY

What's happened to every other superintendent must have happened to you. During the forty years in which we have served the oil industry, our representatives have probably called on you. They may have suggested changing a pump in some particular field.

Being a perfectly normal superintendent, you did one of three things. One,—you cussed them for suggesting such an idea and perhaps asked them if they thought they knew as much about your wells as you did. Two,—you listened. You changed as per suggestion. Nothing phenomenal happened and you cussed them for over-selling you. Three,—you listened. You changed. The well's production jumped 30 barrels per day and you cussed them for not telling you about it sooner.

Having read this far, you are probably wondering what all we are leading up to. Just this,—We are not trying to just replace other makes of pumps with Axelson, or old Axelson Pumps with new ones. Axelson representatives are conscientiously trying to increase the effective production of your well and every other well that's on the pump.

Maybe the suggestions they make involve increased barrels per day. Perhaps longer pumping life. Or, again, they may involve operating savings. Regardless of what the idea may accomplish, the reason behind it is a sincere desire to be of service.

Two months ago Fred Winch* over at Seminole put in an Axelson 2½" x 10". Last month he wrote us a letter showing how that pump had saved him $59.18 per day.

You may not know Fred Winch,* or you may not agree with him, but we are sure you would be interested in his report. It is one of the 67 new reports which we have just prepared on economical pumping. We will bet you a new hat that you won't disagree with all of them. May we send them to you?

* Fictitious names.

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It meets varied pumping conditions where the use of an insert pump is advisable. A traveling tube type pump, it may be installed with the rods. Cups on the bronze plunger are inverted, permitting free action of the tube on the down stroke. The working valve is larger than the standing valve. This feature together with a perforated bottom nut permits the fluid to surge in and out with each stroke reducing the possibilities of sanding up. Furnished with honed tube where desired.

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observed that in this hypothetical case, the imperfection of the gases permits a greater rate of production, and that the curves shown are influenced to a greater extent by this factor than by the deviations from the viscous type of flow.

It should be observed that the slope of a logarithmic plot of $P_1^2 - P_2^2$ against rate of flow will always have a slope of 1 if the laws of perfect gases and viscous flow hold. The work of Pierce and Rawlins[2] has shown that the slope of this curve, from data on a large number of gas wells, may vary considerably from a value of 1. This deviation is undoubtedly caused both by the deviation of the gas laws and the failure of the viscous flow laws and wherever possible, these factors should be taken into account in the analysis of field data.

Recent Laboratory Data

Some of the experimental work carried out in the laboratories of the Humble Oil & Refining Company which substantiates the conclusions reached in the foregoing discussion will be reviewed very briefly.

The work consisted largely in determining flow curves for various fluids in sand packed flow tubes and in actual cores. Typical flow curves are presented in Figure 4. On the basis of these curves, effective pore diameters of the sand were calculated for the various fluids. The results of some of these calculations are presented in the following table:

Table 2

Sand	Fluid	Effective Pore Diameter
B	Air	.00252 inch
	Hydrogen	.00240
	Water	.00252
C-1	Air	.00502
	Hydrogen	.00507
C-2	Air	.00528
	Hydrogen	.00517
	Water	.00537
	Carbon Dioxide	.00534

From these effective pore diameters, the friction factors were calculated, the various values being plotted in the curve of friction factors, Figure 1. It will be observed that there is close agreement between this work and the data of Chalmers, Taliaferro, and Rawlins on natural gas.

This review of our knowledge of the steady flow of simple fluids indicates that this phase of the well spacing problem is fairly well understood. Future work on this problem should be focussed on the other phases, particularly the flow of oil and gas mixtures.

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CALIFORNIA FIELDS

Orderly Development at Kettleman Hills Has Been as Important as the Curtailment Effort There.

BRAD MILLS, ***Staff Representative, Los Angeles, California***

Long Beach's Neglected Level Is Desirable Now

Long Beach, Calif.—A few new locations are being made in the Long Beach field, as the result of recent satisfactory completions around 5000 feet. This latest plan to develop a zone which was overlooked in the race to complete wells in the deeper zones is not expected to grow to large proportions, but several operators who need a steady supply of sweet crude are considering new wells to satisfy their wants. The 300- and 400-barrel completions would not have caused a ripple three or four years ago, but under present conditions such a yield is very desirable. It is remarkable that a field so extensively drilled can hold such a wide interest as Long Beach. First regarded as a shallow field; then called a deep field at 5000 feet, this district has produced oil from depths as great as 8500 feet. Exploration of the shallower zones again becomes a novelty. In developing this level several years ago, poor water shut-offs damaged some parts of the field. Cementing was not closely supervised during the early drilling, and operators were none too conscientious about shutting off water. The cost of drilling to the 5000-foot level will be considerably less than half that of drilling to 8000 feet under present conditions. The fact that the shallow zone is most promising near the center of the field lends a more important touch to the latest efforts. Extensions have not proved so successful in the field as new zones definitely within the proven limits.

Playa del Rey Deep Sand Not Cause for Excitement

Los Angeles.—The deep zone at Playa del Rey shows little evidence that it will ever become an outstanding producing formation. The discovery well was completed in this sand below 6000 feet, but development of a shallower zone overshadowed the original formation for a time. Deepening of many wells to the schist has not proved a sensation by any means, but on the larger leases it should prove profitable to deepen small shallow producers. The schist at Playa del Rey is a very broken formation overlying the older strata, and it is possible that the oil in it has migrated downward.

Union Oil Company drilled to 5920 feet in Vidor 2, an edge test on a large lease, but only a small flow was obtained from the schist and lower producing formation. The well flowed by heads for a short time, but it will be placed on the pump. This test is located less than 500 feet north of Vidor 1, which was a much better producer in the deep zone.

No drilling is being done in the town-lot district, most of the operators being entirely content to produce the wells already completed.

Santa Rosa Wildcat Getting Deep, Nothing Reported

Santa Barbara, Calif.—Standard Oil Company of California is drilling in a hard gray shale below 5160 feet in Santa Rosa 1, a wildcat test on Santa Rosa Island, but has not reported either oil or gas showings. This well was started in the Vaqueros or Temblor formation, and production is possible in the Eocene. It is regarded as a very important test. The Santa Rosa Island is about 25 miles from the mainland and has been used as a ranch for two or three generations. Company geologists did much work on the island before recommending a location for a well, but it was somewhat difficult to identify all of the outcrops. Transportation of supplies and equipment has been slow and tedious, but drilling has been fairly uniform. This is the first test ever drilled on the island.

Kettleman Hills Drilling Keeps at Steady Level

Coalinga, Calif.—The present number of active operations on the North Dome at Kettleman Hills is assured for several future months, as the result of new locations which have at least equalled completions during the past month. There has been no tendency to develop the field on a strictly competitive basis since the few months which followed the discovery of what has gradually developed into the state's leading producer of both gas and oil.

Superior Oil Company has made location for Huffman 5, the fifth test on a 160-acre tract on the northwest flank of the North Dome. Average completion depth of the four producing wells on the lease is more than 8400 feet. The latest location is between Huffman 3 and Huffman 4 and its completion will not extend the field. Kettleman North Dome Association has made location for No. 61-32J, a test to be drilled on Section 32-21-17 and near the northwest flank of the structure. Union Oil Company has completed rig for King 3, third well to be started on a 160-acre lease on the northwest slope.

One of the most interesting developments at Kettleman Hills has been the ease with which drilling is being done. The first wells were completed with great effort and expense, but the most recent completions have been finished in record time. Operators seemed to have a fear of the field at first, but it must be admitted that experience has been a valuable teacher. Drilling to around 6000 feet in 30 days has been done on two or three occasions. This compares with from one to two years in a few earlier instances. The mental hazard of drilling on the North Dome was apparent for some time, but rapid completion of a few wells has reduced this to a minimum.

Improvement of equipment and technique has played a prominent part in greater drilling speed. Taller derricks, heavier equipment, super-heated steam, and many other improvements have been inaugurated. Running of casing is not beset with the hazards which formerly accompanied the operation. Fishing jobs have been reduced by more than half, while detailed records of drill pipe failures have provided data upon which to base changes in drilling procedure.

The orderly development of the North Dome has been as important as its curtailed operation. Competitive drilling in this field would have caused a flood of light oil which could not have been absorbed by the market even in better times. Completion of a large number of large wells, and subsequent shutting in of such producers would have created a potential supply of dangerous proportions. The field is under present circumstances capable of producing much more oil than it has been yielding, but observance of conservation has until recently held the output down to the correct level. Extensive drilling would have benefitted the equipment manufacturers for a time, but the reaction would have offset these good effects, and would have prevented a normal recovery from the present slump.

Water has caused no trouble in wells which were completed with a negligible

cut. Nearly half of the producing wells are showing a total cut of only one tenth of one per cent, while the maximum cut of any well was less than six per cent until the recent completion of a well on the northwest flank which apparently developed casing trouble and showed a cut of 12 per cent.

Petroleum Securities Company's Felix 3, a recent recompletion at 8516 feet, has increased its flow to 5000 barrels, after getting away to a less impressive start. The cut dropped to less than one per cent, and gas production was less than 3,000,000 cubic feet. This was an unusually good gas-oil ratio. The well flowed for a short time at an indicated rate of more than 11,000 barrels, but trap facilities were too limited to attempt a wide-open flow test.

North Kettleman Oil & Gas Company is drilling around 9800 feet in Lillis-Welch 1, extreme outpost test northwest of the field, and there is some doubt as to the identity of the hard black shale at and near bottom. This extension test is an important well, but it requires considerable imagination to picture a large producer at such a remote location. Completion of a commercial producer here would open several thousand acres between the well and the edge wells on the northwest flank of the North Dome. Production below the Temblor is possible, but more probable within the present proven limits of the field.

California Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
ATHENS-ROSECRANS—		
Barnsdall Oil Co., Trust 2 (workover)	175	6914
KETTLEMAN HILLS—		
Petroleum Securities Co., Felix 3, 35-21-17 (workover)	5000	8516
LONG BEACH—		
Bush Oil Co., Bess 4	150	4150
Hancock Oil Co., No. 6	300	8217
LOS ANGELES COUNTY—		
Nelson F. Hogan's No. 1, 23-3-14	*	850
WEST COYOTE—		
Standard Oil Co., Murphy-Coyote 111	1500	6287

New Operations

FRUITVALE—Fruitvale Oil Co., Lane 1, 15-29-27.

KETTLEMAN HILLS—Standard Oil Co., No. 25, 35-21-17, Union Oil Co., King 3, 29-21-17.

MESA—B. L. Webb, No. 1, 28-4-27.

MIDWAY—North American Oil Cons., No. 25, 32-31-24.

MONTEREY COUNTY—Western Gulf Oil Co., Johnson 1, 29-12-2.

VENTURA—Livermore and Kennedy, No. 22, 33-4-23; No. 23, 33-4-23. Associated Oil Co., V. L. W. 26, 26-3-23.

Wildcat Drilling Report

(Wells shut down not included)

NORTHERN CALIFORNIA

KERN COUNTY

DEVIL'S DEN—A. S. Halladay's Lincoln 1, 11-25-18, rigging rotary. Thomas Hannah's No. 1, 25-25-18, dr out cmt 3455 ft.

LOST HILLS — Associated Oil Co.'s Williamson 1, 2-26-20, bldg rig; this is wildcat only in deep zones.

McKITTRICK—Ozena Oil Co.'s No. 2, 27-29-21, plugged back from 3025 ft, showed water. T. H. Purman's No. 1, 22-29-21, dr shale 5035 ft. Welport Oil Co.'s No. 1, 19-29-21, dr gray sand 825 ft.

SEMITROPIC—Milburn and Shirman's No. 1, 29-25-21, lcn.

SANTA BARBARA COUNTY

CARPENTERIA — Casitas Oil Co.'s State 202-2, dr shale 2765 ft.

COAL OIL POINT—Bolsa Chica Oil Corp.'s No. 191-1, flowing salt water 4089 ft, may aban and drill another well.

CUYAMA VALLEY — Cuyama Valley Oil Corp.'s No. 1, 12-10-27, dr shale 2175 ft.

LOMPOC—O. C. Field Gasoline Corp.'s McLean 1, 6-7-33, bailing some oil, td 3162 ft. Meganos Oil Co., Lee 1, 28-8-34, lcn.

SANTA ROSA ISLAND — Standard Oil Co.'s No. 1, coring hard gray sand 5085 ft.

VENTURA COUNTY

CONEJO — International Oil Developers' Powell 1, 33-2-20, dr rock 2240 ft.

FILLMORE—Sovereign Oil Co.'s Leavens 1, 23-4-19, made production test, well showed only small amount oil, td 1133 ft.

HOPPER CANYON — Bardeen Pet. Co.'s Lankershim 2B, 13-4-19, testing on pump, td 2775 ft. Commander Oil Co.'s Fennel 1, 13-4-19, dr 2110 ft.

LAS POSAS—Las Posas Pet. Co.'s Mahan 1, 22-3-20, rig.

RINCON—Woodrow Pet. Corp.'s Woodrow 1, 4-3-24, dr shale 5860 ft. Honolulu Consolidated Oil Co.'s Valenzuela 1, 23-3-24, dr hard sand 2285 ft.

SANTA PAULA—J. W. Mosher's No. 1, 22-4-21, dr shale 725 ft.

SESPE—Harmon and Deal's No. 1, 33-5-19, dr shale 1435 ft. H. A. Ivars' Star 7, 1-4-20, co 1620 ft. Merchants Pet. Co.'s Cochran 6, 1-4-20, dr shale 200 ft.

SULPHUR MOUNTAIN—Wilshire Annex Oil Co.'s Thompson 1, 20-4-21, dr shale 1165 ft.

TIMBER CANYON—Petro Well Prod. Co.'s No. 4, 18-4-20, dr shale 2330 ft. Superior Oil Co.'s West 3, 13-4-21, drilled to 6854 ft, will plug back and test shallow zone.

MISCELLANEOUS

KINGS COUNTY—Knudsen and Schmidt's Avenal 1, 36-23-17, will be drilled under contract by Pacific Western Oil Co., td 5765 ft. Dudley Dome Oil Co.'s No. 1, 9-23-20, dr shale 2212 ft. Triune Gas, Oil and Land Co.'s No. 1, 5-23-20, bailed showing of gas and oil, td 1100 ft.

FRESNO COUNTY—John F. Oliver's No. 1, 20-15-18, rigging up rotary.

MONTEREY COUNTY—Western Gulf Oil Co.'s Johnston 1, 29-12-2, dr 300 ft.

SAN LUIS OBISPO COUNTY—Kent and McDonald's No. 1, 3-32-22, dr shale 3700 ft. Shell's Mahoney 1, 4-25-12, dr shale 3940 ft.

SOUTHERN CALIFORNIA

EL MONTE—Andrus and Hutcheson's Fee 1, 11-1-11, dr sand 1165 ft.

HASLEY CANYON—W. A. Smith's Gilmore 1, 32-5-7, m 3212 ft.

HERMOSA BEACH—Mira Vista Oil Co.'s Calico 2, 6-4-14, dr out cmt 2700 ft.

LYNWOOD—William L. Jones' Graham 1, 31-2-12, oil showings 4420 ft. Leonard F. Roberts' Specht 1, 29-2-12, lcn.

NEWHALL—W. L. Alexander's Alexander 1, 1-3-16, rigging up rotary. W. T. Ball's Newhall 1, 34-3-16, fsh for drill pipe 3582 ft. Naval Reserve Oil Co.'s Trumble 1, 6-3-15, co 1250 ft.

PLAYA DEL REY—Cooperative Dev. Co.'s Mesmer 1, 26-2-15, co 6440 ft. Del Rey Hills Oil Corp.'s U. C. S. 1, 26-2-15, rigging rotary.

SAN FERNANDO—Willard Marble's Lake 1, 6-2-16, fsh for drill pipe 1600 ft.

SAN JUAN CAPISTRANO—Mineral Exploration Co.'s Echinique 1, 8-8-7, will sd, td 3725 ft.

WILMINGTON — Pacific Oil Investment Co.'s Lupie 1, rigging up rotary.

SAN BERNARDINO COUNTY — Great American Pet. Co.'s Gapco 1, 18-2-8, repairing equipment, td 300 ft.

Athens-Rosecrans Deep Efforts Not Encouraging

Los Angeles.—Drilling of deep tests in the Athens-Rosecrans and Dominguez fields has been watched with interest, but production tests in both of the most important wells failed to indicate more than a small production from new lower zones.

Barnsdall Oil Company plugged back to 6848 feet in Trust 2, a deep test in the Athens-Rosecrans field, but obtained a flow of less than 200 barrels of 33 gravity oil on the compressor. Deeper production has been developed in the west side of the field, but this well has been regarded as an important test.

Shell Oil Company drilled to 6075 feet in Hellman 1, one of the deepest wells yet drilled in the Dominguez field, but cleaned out only to 5515 feet for a production test. The original flow showed 200 barrels of oil and about as much water, but the water cut increased and reduced the oil to about 25 barrels.

Santa Paula-Fillmore Area Attracting Attention

Fillmore, Calif.—The Santa Paula-Fillmore district has been attracting some attention, as the result of several tests under way along trends which have shown promise at various levels. Hope of a stable production of refinable oil at shallow depths has prompted more leasing activity than had been recorded for some time.

Sovereign Oil Company cored a considerable thickness of oil sand and shale in Leavens 1, a wildcat test on Section 23-4-19 and near Fillmore, but a production test at 1133 feet showed only a trace of oil. The 11¾-inch casing was landed on bottom and cemented through perforations at 590 feet, but the more than 500 feet of loose oil sand and shale apparently was too silty to yield oil and gas. More hole will be made and a deeper zone tested. A large production at such a shallow depth was hardly expected, but more than a small flow of fresh water was welcomed.

Superior Oil Company drilled to 6854 feet in West 3, a deep test on Section 13-4-21, and will plug back to around 3500 feet to test a shallower zone. A string of 11¾-inch casing was cemented at 3250 feet, but a definite testing level has not been announced. Elaborate preparations were made for this test, which was one of the first deep ones drilled in the district.

Bardeen Petroleum Company has been active in the Hopper Canyon district, and is trying to put Lankershim 2-B on the pump at 2775 feet. One good well was completed on the same lease.

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REPUBLIC salesmen everyday hear prospective buyers of Toncan Iron Pipe say, "But it costs more." But that's no argument against buying it—at least hundreds of actual users don't think it is, because in the end it actually costs less.

Bare pipe prices are no basis for figuring values. The true yardstick is the cost of the pipe installed divided by the service life. Installation usually costs more than the pipe and fittings, and when failure occurs the entire installation cost is lost forever. Then it costs money to tear out the old, and the original cost must be paid again for the replacement. Figure it this way. One kind of pipe lasts, say 5 years. Another 10 years. Even if the 10 year pipe costs twice as much as the other, it saves money for the user—saves the entire cost of tearing out the old and replacing with the second installation.

Toncan Iron Pipe lasts longer because it is made from an alloy of scientifically refined iron, copper and molybdenum. It costs more to make, yet it costs less to use because its resistance to corrosion among ferrous metals is exceeded only by the stainless irons and steels. Wherever the spectre of rust raises its ugly head, Toncan Iron Pipe will save you money.

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OKLAHOMA FIELDS

Plenty of Fireworks at Proration Hearing Which Is Expected to Last Month; Texas Rumor Raises Ire.

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

Lincoln County Wildcat Finding Nothing Important

Seminole, Okla.—One of the most interesting tests in the Seminole district at this time is Anderson-Kerr et al's Zoeller 1, NW NW SW Section 5-6n-5e, twin to a dry hole at 4404 feet in the Wilcox sand. Robinson-Hicks et al's Crouch 1, the original well, found top of Viola limestone at 4094 feet and Simpson pay at 4266 to 4272 feet, where it swabbed 275 barrels of oil and 185 barrels of water. Believing that this showing would not make commercial production, operators drilled ahead and found water in the Wilcox sand at 4397 to 4404 feet. The test was drilled to 4166 feet with rotary tools and completed with cable tools on December 30, 1930. Zoeller 1 was cored from 2872 to 2877 feet, where a one-foot recovery show oil and water. Operators were running eight-inch casing to set at 2865 feet and standardize. The sand at total depth probably is Calvin.

West St. Louis Pool

Phillane Oil Company swabbed 1110 barrels of oil in 22 hours and had no water showing in its Garrett 1, CSE SE NW Section 28-7n-4e, in the area between the old St. Louis and Pearson Switch pools. Two pay formations were reported, Viola limestone at 4075 to 4080 feet and Upper Simpson at 4171 to 4175 feet, the total depth. Approximately one-half mile northeast, Stewart et al pumped 283 barrels in 20 hours from Bailey 1, CNW NE NE Section 28-7n-4e. After penetrating Simpson dolomite at 4178 feet and pay from 4195 to 4200 feet, operators had a trace of water and plugged back one foot. Latest reports show the well shut down for repairs and no statement has been made regarding the water shut off. It is on potential for proration purposes.

West Seminole

The Texas Company set eight-inch casing at 4050 feet and had a small showing of oil in Upper Simpson at 4106 feet in its Sandlin 5, CNE SW SW Section 29-9n-6e, in the West Seminole pool. Top of Viola limestone was reported at 4035 feet.

West Konawa Area

Payne Drilling Company has announced change of location from NW SW NW Section 27-6n-4e, to CSW SW NW of the same section. The test, which will be a wildcat, is mid-way between the new West Konawa pool and old Asher in Pottawatomie County.

Lincoln County

Pure Oil Company has announced location for Unglesby 3, SE NE SW Section 1-15n-6e, on Lot 9. It will be a north offset to Unglesby 2, in the County Line pool between Lincoln and Creek Counties.

Sovereign Oil Corporation et al's Flowers 1, CSW SE SE Section 14-12n-3e, closely watched wildcat test two miles west of the town of Meeker in southern Lincoln County, was showing signs of failure as it cored deeper into Wilcox sand and had found nothing of importance. Top of that formation was encountered at 5571 feet, said to be comparatively low structurally. Coring from 5605 to 5609 feet, operators recovered 1½ feet of sand showing indications of water. Between 5600 and 5605 feet the core showed three feet of dry sand, one foot of green shale, and one foot of sand with a trace of water. The test was thought to have been running high above the Mayes lime but an unusually thick section of that formation changed its relationship and before Wilcox sand was encountered many were predicting that it would be a dry hole.

Oklahoma City Proration Hearing Will Last Month

Oklahoma City.—Charges of stealing oil, "racketeering," failure of duty, and the handing out of many left-handed compliments, were heard as the Corporation Commission opened on Monday, November 28, its statewide proration hearing, designed to "get at the bottom of things." Two petitions, each containing a divergent set of rules, are to be heard before the hearing is finished. One petition is filed in the name of Anderson-Prichard Oil Corporation and the other in behalf of Champlin Refining Company.

This hearing, which probably cannot be concluded in less than a month, is the result of postponement of several proration features with which the commission has known that it would ultimately have to deal. Although operating companies generally are divided into two groups, all who have production in the Oklahoma City pool agree that the area should have a larger outlet if such can be gained without a reduction in the price of oil. For many months operators in that area have contended that by all rules of equity some readjustment should be made as between the Oklahoma City and Seminole districts. The former, with an estimated potential close to 4,000,000 barrels daily, has a daily outlet of slightly over 73,000 barrels, while the latter, with a potential of about 281,000 barrels, has a daily outlet of 119,881 barrels, exclusive of the Fish and Wewoka Townsite pools. Purchasers in the Seminole district, having no connections in the Oklahoma City pool, maintain that latter area can gain no advantage by the cutting back of allowable in the former.

Verbal clashes which consumed much of the time during the first three days of the hearing were ruled out when an agreement was reached to hear direct evidence first and allow cross-examination later. Questions regarding the Oklahoma City pool will be cared for first. Operators and purchasers in the Seminole district have been requested to be ready on December 15.

On the opening day H. G. McKeever, attorney for Champlin Refining Company demanded that the commission make an immediate ruling on the question of flat and water allowables in the Oklahoma City pool. In the recent hearing on that subject, Phillips Petroleum Company was joined by Champlin, Wilcox, Westgate and others in a fight to do away with these special allowables, claiming the commission in placing a premium on inefficient production methods in allowing wells making three or more per cent water to produce an extra 100 barrels daily. So far the commission has not ruled on the issue.

When it was learned that purchasers of Texas crude were nominating considerably over a million barrels* for that state there were intimations that efforts would be made to open the pools of Oklahoma. Commissioner E. R. Hughes, who has violently opposed military proration said, "Prohibition didn't prohibit and proration doesn't prorate. If Texas increases its oil output as I understand it will, something ought to be done about Oklahoma. This is proration for the

*An error; see page 10.

benefit of the other states and I'm not going to sit here and help them take away the Oklahoma market. I have just about reached the limit of my endurance."

According to the commission's plans producing units of the industry will be heard first, followed in order by the pipe line and purchasing companies, refineries, and railroads. It was believed that after a few stormy days when pent up feelings were being relieved through heated arguments, the hearing would settle down to normal and the commission would be able to really get somewhere in what is believed the most important proration hearing ever to come before that body.

Oklahoma City Field Completes Four Years of Hectic Career
(Continued from page 11)

per acre and 255,319 barrels per well. The record is all the more impressive when it is considered that several of the 47 wells were drilled on the thin edge of the Wilcox sand. On the same date the record shows that 115 Arbuckle limestone wells have made water, 215 Simpson below Wilcox sand wells were cutting, and 26 Wilcox sand wells were making or had made water. The Arbuckle limestone zone had an estimated total 24-hour initial production of 1,184,533 barrels, or an average of 11.070 barrels per well.

On February 1, 1932, the estimated potential of this zone as 5685 barrels and on December 1, it was making less than 800 barrels daily producing wide open. Recovery to date has been approximately 11,000 barrels per acre with all evidence pointing to an ultimate recovery of not more than 12,000 barrels per acre. Only 34 of the original 114 wells remain as Arbuckle producers, the other 80 wells having been either abandoned or plugged back to upper sands and converted into gas producers.

With the serious water problem which has developed in the Simpson below Wilcox zone it does not seem logical to assume that its recovery per acre will exceed 15,000 barrels. Estimates on Wilcox sand recovery vary from 40,000 barrels per acre to 80,000 barrels or more. Assuming that the pool remains under restrictive regulations and is produced in an orderly manner, it is probably safe to use a minimum of 50,000 barrels per acre for this zone despite the fact that certain sectors in the southwestern portion of the pool have indicated that they will produce only a small per cent of this amount. Roughly calculated the Oklahoma City pool may be expected to produce ultimately in the neighborhood of 350,000,000 barrels of oil from the Arbuckle, Lower Simpson, and Wilcox zones. There remains the possibility of additional production from some of the upper sands which have not been fully tested over the structure. A recent survey of several agencies showed estimated on ultimate recovery ranging from 250,000,000 to 500,000,000 barrels. All are based upon factors which yield but little definite information.

Oklahoma Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CREEK COUNTY—		
Christian & Dean, Barnett 1-A, se c ne 7-18-9e	*	2670
Johnson O.R, Rentie 1, se nw se 32-19-9e (owdd)	¶9	2373
HUGHES COUNTY—		
Pringle & Marshall, Rogers 1, cse ne se 8-7-8e	40	2996
Manahan, J. Long 1, se sw sw 10-7-8e ¶23-437		2930
Rudman-Michaelson, Long 1, se sw sw 10-7-8e 36 hrs.	¶45-10	2930
Woffard, Scott 1, cnw sw sw 10-7-8e ¶3-1700		2916
Key-Okla., Davis 2, cel se nw 14-7-8e	*	1218
MUSKOGEE COUNTY—		
Simpson, Cobb 2, csl se ne 6-14-17e	*	1725
R. Berry, Friday 1, se sw ne 22-15-15e	*	1060
OKFUSKEE COUNTY—		
Burke-Greis, Scott 1, cne ne 20-10-10e	*	4178
H. E. Clark, Williams 8, nwc ne 22-13-12e	20	2901
OKLAHOMA COUNTY—		
Lincoln Pet., Sotts 1, 1120 ft from n line and 702 ft from e line se 15-11-3w	*	5803
Phillips Pet., Micks 1, 375 ft from n line and 897 ft from e line sw 15-11-3w 4 hrs.	¶80-2788	6531
Anderson-Kerr et al, Gallagher 1, 716 ft from n line and 605 ft from line se 22-11-3w 4 hrs.	¶20-4997	6580
OSAGE COUNTY—		
Central Pet., 21, csl se ne se 16-22-9e	50	2230
PONTOTOC COUNTY—		
Patsy, Burk 1, cse ne se 25-5-4e	190	2558
H. & M. Drlg. Wade 1, cse ne sw 29-5-8e	*	1420
SEMINOLE COUNTY—		
Sinclair Prairie, Baker 5 cse sw ne 24-9-5e (owdd)	5	4242
Sunbeam, Campbell 2-A, cne nw se 20-9-6e	250	2800
Amerada et al, Chase 7, nwc se 29-9-6e 2073		4130
STEPHENS COUNTY—		
Gilbert et al, Green 4, ne se ne 2-2s-8w	*	1545
TULSA COUNTY—		
Mechlin, Nave 1, nw ne se 25-18 14e	20	1309
Green, Haikey 1-A, cse se 30-18-14e	*	1560
WAGONER COUNTY—		
H. C. Cooper, Verner 1, csl sw 35-16-17e	*	1123
Coffee & Knox, Alberty 3, nw se se 10-17-16e	*	718
Detrick et al, Lincoln 1-A, 150 ft w of cnw sw 18-18-15e	15	1300
Homer & Edwards, McIntosh 1, ne c nw 22-18-15e	*	1010
Boley & Heirs, 1, ne c 7-18-18e	*	1087
British American, 1, sw ne ne 21-18-18e	*	677

New Operations

CARTER COUNTY—K. D. Oil, Burton 2, cnw sw sw 20-1s-2w. Geo. Pace, Lucas 1, cnw se nw 14-1s-3w.

GRADY COUNTY—Lone Star Gas, Mayo 1, nwc se 36-4n-8w. Lone Star Gas, Warren 1, cse nw 36-4n-8w.

HUGHES COUNTY—Buchner et al, Polk 1-A, ce¼ nw ne 10-9-9e.

JEFFERSON COUNTY—Bridwell, O. W. Seay 1, sw nw ne 30-6s-5w. O. V. Beck, Seay & Seay 4, ne sw se 34-6s-5w.

MUSKOGEE COUNTY—Christie, Tiger 1-A, sw ne ne 1-14-18e. J. W. Hale et al, Kelly 1-A, sw se ne 5-14-19e.

OKFUSKEE COUNTY—Vivian Oil, Johnson 1-A, cse sw nw 34-11-11e.

OKLAHOMA COUNTY—Clement, Little 2, 174 ft from n line and 1718 ft from e line ne 27-11-3w. Correction: Inland Development, Corsican 1, 530 ft from n line and 433 ft from w line se 22-11-3w, formerly reported No. 1, changed to No. 2, and now changed back to No. 1.

OKMULGEE COUNTY—A. Moffett, Grayson 8, cwl nw nw 16-11-12e. Christian, Boon 1-A, ne nw se 20-14-12e.

PONTOTOC COUNTY—Brydia No. 1 Lane, swc nw 30-5-5e.

SEMINOLE COUNTY—Droppleman, Campbell 1, cse sw ne 17-9-7e.

STEPHENS COUNTY—Lesh Bros., Smith 10, cne nw 27-1s-5w. J. R. Travis, Jones 1, cne ne se 13-1s-8w.

TULSA COUNTY—H. Detrick, Drew 1-A, cel se nw 1-17-14e. Bright & Compton, Childers 1, ne sw nw 11-17-14e.

WAGONER COUNTY—Stansberry, Drew 1-A, cwl se ne 26-18-15e. J. P. Flanagan No. 1 Lovett, ne se se 34-18-15e.

Wildcat Drilling Report

(Wells shut down not included)

PAWNEE COUNTY — Deep Rock et al, Crow 1, ne se 26-23-5e, r.u.s.t. O. M. Mainess, Schildberg 1, nw sw nw 27-22-6e, lcn.

NOBLE COUNTY—Lacy Rollins et al, F. Frank 1, se sw, 6-20-2w, rig. Stanolind-Amerada, Kolb 1, cne nw 33-20-2w, dr 2712 ft.

LOGAN COUNTY—Eason Oil, Gun Club 1, nw ne 10-16-4w, Checkerboard 5185 ft, Oswego 5680 ft, dr 5710 ft.

CREEK COUNTY—O. O. Owens, Fee 1, nwc 23-15-7e, dr 1590 ft.

OKLAHOMA COUNTY—Carter Oil et al, Shawbell 24, csw ne 1-12-4w, 9⅝ inch 5927 ft, w.o.c.s.

LINCOLN COUNTY — Sovereign et al, Flowers 1, sw se se, 14-12-3e, Hunton 5378 ft, Sylvan 5400 ft, Simpson 5512 ft, dr 5525 ft.

WASHITA COUNTY — McWhirter et al, Vanderneck 1, ne nw 3-7-19w, (owdd from 1902 ft), ru.

POTTAWATOMIE COUNTY—Payne Drlg., Lovelace 1, nw sw nw 27-6-4e, rog.

PONTOTOC COUNTY — Blackwell O&G, Abbott 1, nw sw ne, 14-4-6e, td 1040 ft, rig burned, rebldg. Sunray, Grant 1, cse ne, 11-4-8e, dr 2885 ft.

GRADY COUNTY — English Drlg. Co., Heenan-Coe 1, ne se ne 32-3-7w, cored 3287-89 ft, salty.

PONTOTOC COUNTY—Williams, Kroth 1, ne se, 33-3-4e, td 1545 ft, 700 ft oil in hole, sd for orders. Delaney, Harden 1, ne sw 30-2-7e, td 806 ft, fsh tools.

COAL COUNTY—Dodd & Burton, Grigsby 1-A, nw se ne 35-1n-8e, dr 825 ft.

ATOKA COUNTY—Hicks Oil, Morris 2, se ne nw se 5-1-15e, S. 69-155 ft, est. 2 bbls. 40 grav oil.

MARSHALL COUNTY—Lee Cross, Hamlin 1, se sw sw, 26-6s-5e, T. sand 654 ft, S. S. G. and water. Thomas et al, Setliff 1, sw se se sw, 36-5s-6e, dr 625 ft.

ATOKA COUNTY — L. E. Stewart et al, Stewart 1, se c ne 2-4s-10e, dr 575 ft. Brookshire et al, Guinn 1, nwc, 18-3s-10e, dr 3368 ft.

STEPHENS COUNTY — Gillette Bros. Cooley 1-A, nw se nw 17-2s-8w, dr 1400 ft. George Pace et al, Peck 1, nw sw 32-2s-6w, dr 965 ft.

KANSAS FIELDS

Wilcox Sand Showing in Ritz Pool Given Small Importance By Operators. Proration Test Completed.

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

Two Important Chat Wells Added South of Voshell

Wichita, Kansas.—Tom Palmer et al's Winn 3, CSE SE NW Section 7-20s-1w, apparently a "freak" well on the south end of the Ritz pool in McPherson County, was pumping 440 barrels daily through 2½-inch tubing, cutting about 10 per cent water. This well was originally completed in February this year, producing initially 1278 barrels from Viola lime at 3397 to 3405 feet. Drilling deeper two weeks ago operators encountered top of the Wilcox sand at 3438 feet and pay sand from 3440 to 3443 feet in that formation. The first report of this find tended to attract some interest but it was remembered that Wilcox sand has been tested at numerous strategic points on the structure and so far has yielded nothing of commercial importance other than from Winn 3. However, there remains the possibility that a fringe of production may be found in that formation.

Washoma Petroleum Company's Meeks 2, NE NE SW Section 7-20s-1w, south offset to Winn 3, pumped 30 barrels for 10 hours through 2½-inch tubing and was cutting 11 per cent water. This well was completed April 20 of this year when it reported 85 barrels initially from Viola lime at 3402 to 3421 feet. In the deepening operation Wilcox sand was topped at 3453 feet and penetrated to 3454 feet, at which point the hole filled with oil in six hours. It is now shut down for rod repair. Source of the water in neither of these recompletions has been definitely determined but probably is coming from the Wilcox sand. Mohawk Drilling Company was preparing to deepen Nannie McGill 1, CSW SW NE Section 7-20s-1w, east offset to Winn 3. It is an older well than either of the predecessor Wilcox producers, having been completed November 10, 1931, producing on its first gauge 682 barrels from Viola limestone at 3406 to 3408 feet. It was drilled 23 feet deeper in June this year, yielding 20 barrels of water and a small amount of oil on the pump.

Harvey County

Two wells of importance were added in the new chat area just south of Voshell in Harvey County. J. E. Mabee and Shell Petroleum Corporation's Martin 2, SE NE SE Section 19-22s-3w, topped chat at 3190 feet and set eight-inch casing four feet in. A showing of oil was encountered at 3220 feet and the first real pay at 3225 feet. One foot in the pay the well began flowing while tools were still in the hole, producing at an estimated rate of 100 barrels an hour and two to three million cubic feet of gas. Producers and Refiners' Martens 1, CNE NW SE Section 19-22s-3w, two locations west and one north of the Mabee-Shell well, reported top of chat at 3165 feet, where six-inch casing was set. First gas was encountered at 3166 feet with a slight increase at 3175 to 3188 feet. First oil was found at 3188 to 3198 feet and at 3198 to 3203 feet it was making about one quarter of a barrel per hour. The big pay was topped at 3203 feet and with a penetration of five feet the well started flowing a six-inch stream of oil to the crown block. It is also estimated at 100 barrels per hour. Both wells are now shut in for the erection of tankage.

Skelly Oil Company has announced location for Cole 1, CSE NW Section 4-

Kansas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CHAUTAUQUA COUNTY—		
Sinclair Prairie, Vanleagen 22, se nw sw 15-34-11e	2	1273
COWLEY COUNTY—		
George Hinkle, Fuller 2, swc se 22-32-4e	¶2	3005
Roth et al, Mancreat 6, ne nw se 22-32-4e	10	3050
H. H. Patton, Hawley 1, sw sw ne 27-32-4e	*	....
EDWARDS COUNTY—		
Mid-Kansas, Converse 1, cne ne 30-24-18w	*	5319
ELLSWORTH COUNTY—		
Derby Oil et al, Stoltenberg 1, cne se se 21-16-10w	30	3356
GREENWOOD COUNTY—		
York State, Jay 1, csw se se 11-23-11e	*	1900
McGinnes, Threll 1, ne se ne 17-24-12e	15	1838
MARION COUNTY—		
Darby & Magnolia, Pankratz 1, cnw nw se 5-20-1e	*	3455
McPHERSON COUNTY—		
Spencer et al, P. Neufeldt 1-B, swc se 16-21-3w	667	3439½
Henderson-Holden, Krehbiel 1, cse ne se 29-21-3w	*	3680
MORRIS COUNTY—		
Urschel, Burth 1, cnw se nw 10-17-7e	*	1832
RENO COUNTY—		
Olson Oil, Blake 2, cne se 23-23-4w	¶1½-115	3276
RICE COUNTY—		
Rodgers, Rainet 1, ne se sw 3-21-6w	150	3410
RUSH COUNTY—		
Skelton et al, Hartman 1, csw se nw 4-18-16w	*	....
SHERIDAN COUNTY—		
Flo et al, Davis 1, cse sw sw 27-7-26w (owdd)	*	4540
SUMNER COUNTY—		
Albert Austin et al, Foy 1, csw se se 14-34-1w	*	4348

New Operations

ELLSWORTH COUNTY—Sinclair Prairie, Malir 1, cne ne 27-15-8w, formerly reported Jilka 1.

GREENWOOD COUNTY — Finney et al, Brown 1, csw ne ne 22-23-11e. Gore et al, Davis 2, cnw se 6-24-12e. Mathews-Rex, Reeser 4, se ne ne 7-24-12e. Correction: McGinnes, Holland 1, ne c se 32-23-11e, formerly reported in se¼ then changed to sw¼ and now changed back to se¼.

LYON COUNTY—Sheedy, Bland 1, nw ne nw 20-20-10e.

McPHERSON COUNTY — Washoma Oil, Meeks 2, cne ne sw 7-20-1w (owdd. All States Pet., Walls 4, ne se sw 21-21-3w. Derby Oil, Neufeldt 3, se ne sw 21-21-3w. Derby Oil, Neufeldt 4, sw ne sw 2-121-3w.

SALINE COUNTY—Frank Dieter, Fulkan 1, csw sw nw 14-16-2w.

WOODSON COUNTY—Sheedy, Ryan 1, ne sw sw 32-24-14e.

Wildcat Drilling Report

(Wells shut down not included)

SUMNER COUNTY—Austin et al, Foy 1, sw se se, 14-34-1w, pb to 3961 ft, swb S. S. O. and 95% water, D&A. Trees Oil & Shell, Springate 1, ne se sw 6-34-2e, td 3639 ft fsh.

COWLEY COUNTY — Roth and Faurot, Craig 1, se c 2-32-3e, dr 1808 ft.

SEDGWICK COUNTY—Cameron & Great Basin, Landson 1, cse nw, 13-28-2e, dr 3275 ft.

PRATT COUNTY—Ninnescah O&G, Hardesty 1, sw se se, 28-27-11w, dr 3357 ft.

BUTLER COUNTY — Ramsey, Michael 1, sw nw nw, 18-27-3e, B. M. L. 3118 ft, 5 inch 3128 ft, dr 3141 ft.

FINNEY COUNTY—Joe Denham, Brown 1, csw, 16-25-34w, dr 2500 ft.

FORD COUNTY—Swain et al, Henthorne 1, cnw, 21-25-24w, td 5782 ft, D&A.

EDWARDS COUNTY — Mid-Kansas, Converse 1, sw ne ne, 30-24-18w, td 5319 ft, D&A.

WOODSON COUNTY—Sheedy et al, Ryan 1, ne sw sw 32-24-14e, dr 260 ft.

HARVEY COUNTY—Phillips Pet. Wiebe 1, nw sw nw, 30-23-2e, rig.

GREENWOOD COUNTY—York State, Joy 1, se c 11-23-11e, sand 1821-27 ft dry, td 1900 ft, D&A.

McPHERSON COUNTY—Holcomb & Trimmer, Waltner 1, sw ne se, 19-20-2w, lcn.

MARION COUNTY—Darby et al, Pankratz 1, nw se, 5-20-1e, Wx 3338 ft wtr, Sil. 3428 ft hfw, td 3455 ft, D&A.

NESS COUNTY—Sinclair Prairie, Wilhelm 1, csw sw 16-19-21w, 15 inch 257 ft, td, wocs.

RICE COUNTY—Ramsey et al, School lot 1, nw sw nw 32-19-9e, td 2900 ft, rng 8-inch.

MARION COUNTY — Vernon-United Pet., Schmidt 1, sw nw 35-19-1e, 2305 ft hfw, 8 inch 2335 ft, dr 2440 ft.

RUSH COUNTY—Skelton-Schleagel, Brock-Hartman 1, sw se nw 4-18-16w, spd and abn.

BARTON COUNTY—Smith, Ash et al, Wilson 1, cnw sw 13-18-14w, Congl. 3367 ft, sil. 3415 ft, 3418-24 ft hfw, dr 3428 ft.

MORRIS COUNTY—Urschel et al, Bersuch 1, nw se nw, 10-17-7e, Chat 1815-25 ft dry, sand 1825-32 ft wter, td 1832 ft, D&A.

BARTON COUNTY—Sinclair Prairie, Turgeon 1, cne nw 3-16-12e, dr 310 ft.

SALINE COUNTY—Dieter et al, Fulton 1, sw nw, 14-16-2w, rog.

ELLSWORTH COUNTY—Raymond Gear & Hannah, Kroboth 1, se nw, 12-15-10w, 12-inch 477 ft, dr 1720 ft. Henry et al, Arensman 1, csw sw, 10-15-7w, rig. Gurley Bros. & Barnsdall, Union Pacific 1, nw sw 7-14-7w, 8 inch 2670 ft, dr 2785 ft.

GRAHAM COUNTY — Schleimeyer et al, Smith 1, se c 24-8-25w, td 3615 ft, recementing 8 inch co.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw, 27-7-26w, td 4535 ft, hfw, D&A.

26s-8w, on its block in southern Reno County. Nearest production is in the Miles or Cunningham area of northwestern Kingman County, approximately 14 miles southwest.

Reeser-Ross and Lee have announced location for No. 1, NW NW SW Section 4-22s-3w, mid-way between Derby Oil Company's new Hamm well in Section 33-21s-3w, and D. R. Lauck et al's Krehbiel 1, SW SE NW Section 9-22s-3w, a dry hole at 3804 feet.

Vernon Oil Company and Shell Petroleum Corporation were shut down awaiting orders and probably will abandon Tonn 1, CNW NW Section 17-25s-4w. The well originally was completed June 26, 1930, producing 197 barrels of oil and 20 per cent water on the pump from 3606 to 3611 feet. In the recent deepening Viola limestone was encountered at 4011 feet with a hole full of water at 4013 to 4016 feet. Wilcox sand at 4026 feet was dry as was Arbuckle "siliceous" lime at 4117 to 4120 feet, the present depth.

Ritz-Decker Garrett Area Shows Big Potential Loss

Wichita, Kansas. — Final figures on recent official tests in the Ritz-Decker-Garrett area of McPherson County, show that 104 Viola limestone and deep sand wells have a potential of 72,085 barrels, compared with a previous total potential of 107,146 barrels for the same number of wells. Sixty-eight chat wells are rated at 13,640 barrels compared with the old potential of 48,730 barrels, making a total drop of 70,151 barrels or 45 per cent. As a result of reduced potential Umpire Lloyd Pickrell announced effective November 10, allowable production for all Viola limestone wells, except those receiving minimum allowance, would be increased from 10.2 per cent to 15 per cent. Daily allowable for chat wells was increased from 9.2 to 20 per cent. Due to the taking of potential tests, several leases were considerably overproduced and operators were requested to regulate production so as to be even at the end of the proration period on December 1.

Oklahoma City Pipe Lines Must Have Meters Installed

Oklahoma City. — Governor William H. Murray has issued orders to military proration authorities to close all pipe lines in the Oklahoma City pool not equipped with accurate meters after December 1. In an executive order issued June 21, 1932, Governor Murray had demanded that meters be placed on all lines carrying oil from the field. Installations were to have been made by August 1.

NORTH and WEST TEXAS

Archer County Gets Second Shallow Oil Strike in Month. Big Lake Well Now Past Texas Depth Record.

H. H. KING, *Staff Representative, Fort Worth, Texas*

Archer County Wildcat Has Indications of Production

Wichita Falls, Texas.—Archer County scored its second shallow oil strike for November when J. I. Staley of Wichita Falls and others' wildcat on the W. L. Andrews ranch, located southeast of Anarene, gave assurance of making a commercial well from sand at 992-996 feet. It is located near center of south line of the R. R. Rainey survey, Abstract 354, and on a 240-acre leasehold. A gauge of the production has not been taken. This wildcat has a surface elevation of 1156 feet. It is about one mile south of nearest production.

The Texas Company's E. H. & J. H. Morrison 1, NW Section 1580, T. E. & L. survey, opened a new pool in the southwest corner of the county earlier in November with a small well at 1325-1332 feet. It has a surface elevation of 1247 feet.

Pumping wells from the shallow lime horizon in south central Archer County promise to respond with a substantial gain in oil out put when treated with acid compounds that have proven successful in stimulating production of stripper wells from the lime formation in the Breckenridge district, Stephens County. W. B. Hamilton et al's L. Cartwright 1, which was pumping eight barrels oil daily from lime at 1181 feet, used 500 gallons of the treating fluid, with a 35-barrel oil load, and pumped 55 barrels of oil on first 24 hours after recovering the injected oil. Production dropped to 15 barrels the second day, then 34 barrels in nine hours the next day, and 32 barrels of oil in four hours on the morning of November 25. Other owners of stripper wells in the lime belt are authorizing acid injections on the strength of the results from the above experiment.

J. J. Moran and Wotola Royalty Company's Miller-Webb 1, which was listed last week as having opened a shallow oil pool in northwestern Young County, pumped 50 barrels, including head, the first day from sand at 772-781 feet, and dropped to 30 barrels the next day. It is on lot 1, A. Rohus survey.

The Texas Company's third wildcat test on the Johnson ranch, located on the Navarro structure in western Foard County, is rated good for 250,000 cubic feet of gas in sandy-lime at 2949-70 feet, with a surface elevation of 1625 feet. The two previous tests which were drilled to 4005 and 4490 feet, did not encounter oil or gas showings until considerably deeper. The Cottle County deep test of Merry Bros.-V. C. Perini and Darby Petroleum Company on the Carl Puersel tract, Section 40, Block "B", J. H. Stephens survey, is drilling lime formation at 4180 feet, with 8¼-inch pipe set at 4013 feet. This wildcat is exploring a 25,000 acre block, and will likely continue to below 6000 feet in search of the Ordovician lime horizon, which is productive at one point in West Texas.

Verne Dumas Petroleum Company's scheduled 7000-foot wildcat test on the M. E. Williams land, near Van Alstyne, Grayson County, is standing at 4942 feet awaiting four-inch drill pipe.

Crockett County Ordovician Wildcat Preparing to Test

San Angelo, Texas.—Appearance of oil and gas near the 7200-foot level and in the upper section of the Ordovician lime formation is sufficient to justify the running of a string of seven-inch pipe in the Crockett County wildcat test on unitized acreage held by Stanolind Oil & Gas Company et al on and near the J. S. Todd ranch. The outcome of this deep test is of particular importance to all sections of the West Texas district underlain by the Ordovician, as a successful completion would establish a second deep area for the district, and provide an incentive to launch a deep drilling program in other likely areas already spotted. Leases on about 10,000 acres, including the unitized block of 4000 acres, surrounding Todd 1 will expire in February, 1933, unless commercial production is obtained in the meantime.

This Crockett County deep test is situated about 35 miles southeast of the Big Lake field, where 12 successful oil and gas completions have been made from the Ordovician lime between 8500-9020 feet with accumulated oil recovery

averaging about 1,000,000 barrels for each well. Todd 1 is located at center of NE Section 67, Block "U-V", G. C. & S. F. Survey, and about 12 miles southeast of shallow lime production in the World-Powell field, which is also destined to receive one or more Ordovician lime tests in the near future.

Todd 1 topped the Ordovician lime series at 7005 feet, with a surface elevation of 2660 feet, and began showing oil and gas in hard tight sand at 7189 feet. This is believed to be the equivalent of the well known Simpson in Oklahoma. Saturation continued to 7200 feet, where drilling was halted to ream the hole and prepare for the landing of seven-inch pipe. A string of 9⅝ inch pipe was cemented with 1500 sacks in black shale at 6108 feet. Considering the normal rise in formations this deep test is correlating favorably with deep wells at Big Lake. Production of any consequence is not due until the hole is carried below the Simpson into the porous dolomitic limestone, source beds of large oil and gas production in the Big Lake field.

Big Expenditure

More than $350,000 has been expended by companies and individuals within the past 18 months for leases, royalties and geological exploration work in general vicinity of the Todd ranch test. The presence of a subsurface high in the area has been known for some years, having been revealed partially through five shallow tests drilled by W. A. Moncrief et al, including some that made gas production. Ten companies contributed acreage to the 4000 acre unit and drilling the deep test, and their participation in the unit was based on number of acres donated to the pool. The percentage of each unit member in the block follows: Stanolind Oil & Gas Company, 40 per cent; Continental Oil Company, 25 per cent; The California Company, 15 per cent; Phillips Petroleum Company, eight per cent; Mid-Kansas Oil & Gas Company, four per cent; Empire Gas & Fuel Company, Sun Oil Company and The Hanson Syndicate, two per cent each; and Nordon Corporation, Ltd., and Texas Gulf Producing Company one per cent each.

Production from the Ordovician lime horizon is particularly desirable because of unusually large oil and gas recovery per acre at Big Lake field, but it has become more attractive than ever since it was accidentally discovered that the uncontaminated crude from the lower section of the lime yields a high lube oil content that compares favorably in quality with the best grades of Pennsylvania lubricating oils. A portion of the Big Lake field deep production is sold on contract at 20 cents per barrel premium above the average postings of five major companies, and a standing premium offer is available for any surplus uncontaminated deep production made available. The extremely high gravity crude produced from the upper section of the Ordovician does not carry a high lube content, and usually the gravity must be below 48 gravity. (*See page 12*)

Six Deep Tests Underway at Big Lake; One at Record Depth

San Angelo, Texas.—Contracts have been awarded for the drilling of two more Ordovician lime tests in the Big Lake field by Group One Oil Corporation (Continental Oil Company), making a total of six deep drilling projects for the field. Big Lake Oil Company has three of the deep tests, including University 1-C, which produced for a long period from the Ordovician lime at 8908 feet, now drilling in lime below 9465* feet with no apparent increase.

Group One Oil Corporation's two new tests are to be drilled by Loffland Brothers Company on contract at a flat price per foot, and will be spotted on a northwest to southeast trend of existing deep production. University 7-B is to be 650 feet from the west and 1900 feet from the north lines Section 36, Block 9, and University 8-B will be 1775 feet from west and 1200 feet from south lines same section.

Big Lake Oil Company's University 7-C, completed October 10 at 8825 feet, is showing only a trace of water since running three-inch tubing to 8805 feet, with a packer set 284½ feet off bottom. This well flowed 762 barrels of 62.8° gravity (corrected) and 9,233,000 cubic feet gas on November 29 with 900 pounds casing pressure and 335 pounds tubing pressure. Use of packer on tubing to try and shut off portion of gas flow from upper section of the Ordovician was to reduce the gas-oil ratio.

The Ector County wildcat test of L. C. Harrison, Fred Turner et al on the L. V. Addis ranch, near Odessa, lodged tools in hole late last week while drilling ahead slowly at 3900 feet. This test is flowing six barrels of 29-30 gravity oil per hour, and the gas flow is rated at 2,000,000 cubic feet daily.

*Deepest in Texas. Penn-Mex well in Mexico went to 10,585 feet, while Western Gulf well in California recently quit at 10,294 feet.

Gulf-O'Brien Production Extended to Winkler County

San Angelo, Texas.—The productive limits of the Gulf-O'Brien field, Ward County, were extended 1½ miles to the northeast and into Winkler County when Sid Richardson et al's John Sealy 2 blew in at top of lime pay at 3105 feet, flowing 35 barrels of oil hourly. The gas flow is rated at two million cubic feet daily.

Due to the absence of storage and pipe line connection the flow has been reduced to two barrels hourly with 350 pounds back pressure.

The oil tests 36 gravity.

This extension well is located in the southwest corner of the north half of southwest quarter SWC N½ SW Section 94, Block A, and will lead to more development along the east line of the O'Brien ranch which is largely owned by Gulf Production Company.

North and West Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
ARCHER COUNTY—		
Bonner Oil Co., King 1	*	1140
Henry Craig et al, Harmonson 1	*	938
Jas. Fish et al, Fish 1	4	1150
W. B. Hamilton et al, Ikard 1-C	*	1163
Geo. Pace et al, Green 7	35	1168
R. W. Reynolds et al, King 1	*	1142
Sinclair Prairie Oil Co., Boyles-Falls County 3	65	1124
Vigil O&G Co., Harmel 11	*	1470
WICHITA COUNTY—		
E. J. Stump et al, Barton 2	35	1749
S. H. Walton et al, Gulf P. L. Co. 4	4	810
WILBARGER COUNTY—		
Bowman Drlg. Co., Johnson 1	*	2160
YOUNG COUNTY—		
Atlantic-Pacific Oil Service, Smith 1, Sec. 71	*	1208
Deininger et al, Speer 1	*	602
Kleiner et al, Johnson 5	4	505
T. G. Lester et al, Jones 1, Sec. 101	*	655
C. W. Mason et al, Lowe 1, Sec. 59	10	893
J. J. Moran-Wotola Royalty Co., Webb-Miller 1	30	781
Jas. L. Nelson et al, Jordan 1, Sec. 707	*	861
Petroleum Producers Co., Taack 1, Sec. 264	*	800
Frank Schow et al, Keith 2, Sec. 267	*	800
The Texas Co., Bird 1, Sec. 202	*	877
D. L. Wolfe et al, Culbertson 1, Sec. 242	*	836
TEXAS PANHANDLE		
GRAY COUNTY—		
Suloch Oil Co., J. S. Morse 2	225	2538
The Texas Co., J. E. Williams 13	950	2744
WEST TEXAS		
PECOS COUNTY—		
Aero Gas Refining Co., L. L. Byrne 3	*	1507
Stanolind O&G Co., Tippett-Dixie 8-B	70	383

EAST CENTRAL TEXAS

Adoption of Bottom-Hole Pressure as Proration Basis Will Require Time to Inaugurate.

H. H. KING, *Staff Representative, Fort Worth, Texas*

Leon County Test Passing Up Oil Show Seeking More

Tyler, Texas.—Additional oil saturated sand is to be sought by the Leon County wildcat test of Shell Petroleum Corporation et al by deepening through a shale strata found below the 14 feet of oil sand and oil saturated sandy-lime formation topped at 6054 feet instead of trying for a producer at its present depth of 6087 feet. Drilling of cement plugs was scheduled to take place late last week, with the rotary crew instructed to core ahead. This wildcat is located on the Wm. Phillips 164-acre tract, E. A. Swayze survey, about seven miles northwest of Centerville, and located on what is known as the Buffalo structure. It promises to open a new oil area from the Woodbine sand formation in the south portion of the East Texas district, and about 40 miles southeast of nearest production, which is the Mexia field. A string of seven-inch pipe was cemented at 6039 feet (corrected) after coring through the saturated formation into hard shale at 6068-6087 feet.

This hard strata of shale below the oil and gas showings will permit a water shut off in the event water is encountered in deepening for additional oil saturated sand. The Woodbine sand taken in is probably sufficient to make a commercial producer, but probably would not be large for such a depth. It is for this reason that the owners prefer to try for a big well on the first test of the large core drilled structure even at the risk of drilling into water. The East Texas field holds the record in Texas for deep production from the Woodbine sand, and the Leon County promising wildcat probably holds the distinction of encountering the Woodbine sand at the lowest depth in the state.

A dual race for discovery honors, if any were possible, was interrupted middle last week by the halting of drilling operations on one of the wildcat tests trying for production from the Woodbine sand on the Ogden dome in eastern Wood County. Sinclair Prairie Oil Company and D. Replogle's John Saner (445-acre) 1, Lot 19, J. M. Chandler survey, halted at 4300 feet November 30 after having spudded 11 days previous, with time included for cementing surface pipe. This speedy test was drilled by Manahan Drilling Company, Tulsa, and will await the outcome of the original test for the structure. F. B. Parriott and J. S. Hanlon, Tulsa operators, launched the first test on this deep seated Cretaceous structure middle October when work was started on J. H. Harvey-Stuart 1, M. H. Ussery survey, and late last week were drilling in shale below 4450 feet. The latter is located about 150 feet higher on structure, based on correlation of the Pecan Gap chalk logged by the two tests. Shell Petroleum Corporation paid $17.50 base price per acre for one-fourth of the royalty under the Harvey-Stuart 1964-acre tract on the strength of both tests running high on key formations compared to others in the general area.

Parriott and Hanlon will carry their test to the Woodbine horizon, having cored extensively in order to ascertain all key formation changes. They have a block of 4700 acres. The preliminary geological work on the block was performed by Virgil Whitworth, Fort Worth geologist, who discovered surface indications of a dome like structure through aerial photography. Tom Leach, geologist for the old Transcontinental Oil Company, also participated in the geological survey before Parriott and Hanlon took over their block.

Superior Oil Company (California) has moved in heavy rotary to try for production in the Woodbine sand horizon on the flank of the La Rue salt dome in east central Henderson County after having acquired a substantial block of leases earlier in the year. This new test will be 330 feet from the north line and center of the test and west lines of the Cole-Faulk tract, H. Z. Farmer survey, and about 1½ miles northwest of Shell Petroleum Corporation's S. T. Stephens 1, I. D. Owen survey, which proved the presence of the deep seated salt dome by topping the salt plug at 4450 feet and drilled to 4815 feet before abandoning in June, 1930. Stephens 1 logged first Woodbine sand series at 3164 feet, with a surface elevation of 510 feet. La Rue dome, located about 13 miles southeast of Athens, was spotted in 1927. Prior to drilling its deep test, Shell Petroleum Corporation made more than a score of core tests on its block, ranging from 215 to 2174 feet in depth.

Title difficulties encountered by H. H. Myers of Tyler and others on their wildcat block in northeastern Henderson County, where an oil saturated sand core was reputed to have been pulled November 1 at the 3711-19-foot level, will result in the scheduled production test being delayed until late in December, or early in January. More operators and companies have become convinced that this wildcat on the M. E. Olson 80-acre tract, Geo. Wilson survey, has merit, and a sizeable volume of lease and royalty trading has been underway. A string of 6⅝-inch pipe was cemented at 3701 feet on November 8. A re-check on titles revealed that Myers et al did not have title to full interest in the well site, but this has since been corrected. W. F. Bridwell of Tyler has made location with intentions of drilling in the southeast corner of the C. T. Jackson 25-acre lease, J. Levins survey, and several other tentative locations have been staked.

Two Joiner Section Tests Ordered Abandoned

Tyler, Texas.—Two candidates for a share of the field's output on the east and west edges of the Joiner section went amiss last week, and have been ordered plugged as failures. Sinclair Prairie Oil Company's Geo. Patterson 6, located in northwest corner of 153-acre lease, Juan Vargas Survey, Smith County, topped sand at 3748 feet and abandoned at 3758 feet, or 3339 feet below sea level, after coring ahead and testing at intervals without finding commercial production. This failure is a southeast offset to Sun Oil Company's Mattie Burns 1, which was completed recently making 40 barrels of pipe line oil hourly from two feet of sand, with the hole bottomed at a sub-sea depth of 3314 feet. Erratic sand conditions placed the possible producing horizon in Patterson 6 at too low a level to produce. T. C. Adams and Rowe's N. L. Marvill 1, an east side outpost in the southeast corner T. H. Smith Survey, failed when given drill stem test at 3709 feet.

East Side Pumpers

Hunt Production Company, Tyler, is keeping up its average of several new additions to the list of pumpers each week through completions on the east side of the Joiner area. This company's Bradford 8-B pumped 40 barrels on first four-hour gauge at 3632-3702 feet, and Bradford 1-F pumped a like amount in three hours at 3530-3624 feet. W. F. Reynolds of Henderson et al's J. H. Henson 1, a

diagonal offset to the above, flowed 70 barrels in 12 hours via open tubing at 3520-3628 feet.

Magnolia Petroleum Company's Dick Wells 6, located in northeast corner of the Hy Hobson Survey and on the east side of the north Rusk County section of the field, encountered tight sand conditions at 3703-13 feet and failed to flow. It will be standardized to pump. This company is rigging up standard tools to pump its three completions on the Rowland (warehouse) lease, northeast Kilgore townsite area, to kick off with pump, since they refuse to flow their allowable without agitation.

New Proration Method Will Require Time to Inaugurate

Tyler, Texas.—An unavoidable delay of several weeks, or more, will elapse before the Texas Railroad Commission can possibly inaugurate its proposed method of prorating wells and leases in the East Texas field on a basis of completed wells, acreage and bottom hole pressure of a given property owing to the magnitude of the task in preparing a proration schedule for each lease. An official tabulation must be compiled assigning the allowable of more than 2600 separate producing leases held by about 975 companies, partnerships and individuals. The new proration plan is more complicated than that used in the field heretofore, and it is possible that it will not be in effect generally this month. Anticipating this delay the commission ordered the per well allowable continued until further notice, with the allowable cut from 40 to 37 barrels effective 7 a.m. December 1.

The first schedule involving bottom hole pressure readings will be made from cooperative survey made recently by the companies owning 14 bottom-hole pressure determining instruments on duty in the field. In the future closer supervision of the use of the bombs will be made by representatives of the commission, which will have a dead weight tester to use in calibrating the bombs loaned by the various companies in making monthly surveys for accuracy.

Reservoir pressure readings have been taken by operators at 60-day intervals for more than a year from 250 to 260 key wells scattered at random over the field. Each instrument is capable of reading pressures on five or more wells daily, and the survey was usually completed in about 10 days. The commission proposes to establish key wells at half-mile intervals, using a five spot well to each square mile, including a well at the corners and one at the center. Approximately 340 wells will have to be designated as key wells in order to cover the field as planned.

Commission Field Staff in East Texas Reorganized

Tyler, Texas.—Reorganization of the proration enforcement staff of the Texas Railroad Commission in the East Texas oil field took place December 1 when F. Homer Pierson, who has been head of the special bureau created late in September to check oil thefts and proration violators, was placed in charge of all local departments. This consolidation of the proration forces will eliminate duplication of work and it is expected to result in more efficient enforcement throughout the field. Under the new arrangement the field has been split up into three parts with a deputy supervisor responsible for enforcement of all rules in his district.

District assignments follow: J. A. Morehouse, Longview; E. W. Barr, Kilgore; and Luther Swift, Henderson or Joiner.

Should the commission attempt to enforce its proposed per-well, acreage and bottom-hole pressure proration plan there is possibility that more than 50 per cent of the 975 separate operating units will be openly opposed to the method because of having small tracts and possessing leases in the low pressure areas. The commission hopes to be prepared to cope with this opposition, known to be pending, by strengthening its enforcement machine.

East Texas Discoverer Sues of $15,000,000

Dallas, Texas.—C. M. "Dad" Joiner, wildcatter who drilled and completed the discovery well of the East Texas oil field after junking his first two efforts on the same site before reaching the Woodbine sand horizon, believes he has been underpaid by $15,000,000.00 for leases he sold in vicinity of the first producer after its completion. A suit for such an amount, or the cancellation of leases, has been filed at Henderson, county seat of Rusk County, against H. L. Hunt, Hunt Production Company and P. G. Lake. The case has not been set for trial.

The suit alleges that Joiner was kept in conferences at a Dallas hotel in November, 1930, and for this reason was not aware of field deevlopments then transpiring that enhanced the value of properties acquired by the defendants. After filing the suit Joiner made public acknowledgement that he was not held under duress while negotiations for the deal were under way, and that he has no personal animosity towards the defendants.

Late in November, 1930, Joiner et al contracted to sell a majority interest held in about 4000 acres situated near the lone well in the field at that time to H. L. Hunt and associates for $24,000 cash; $45,000 payable in four notes within 270 days; $375,555.55 payable out of 7/32 interest in first production; and $534,445.45 payable from 7/64 interest in ensuing production. Other deals involving small tracts were made during the early stages of development by Joiner et al, and at present he has very little interest in the field. The discovery well and about 500 acres of surrounding leases were thrown into voluntary receivership by Joiner et al within a month after the well began flowing. This action was taken because of conflicting claims advanced by scores of individuals that helped "poor boy" the discovery well down to the Woodbine.

Humble Wants Loose From East Texas Connections

Tyler, Texas.—Resumption of full payment on all crude accepted from outside connections in the East Texas oil field by Humble Oil & Refining Company is largely contingent upon its ability to break away from about 300 wells now classed as a surplus over its current requirements. It is understood that representatives of the company will seek such relief at the well connection committee meeting to be held at Dallas December 3. There are no purchasing companies, paying above 75 cents per barrel, willing to absorb any appreciable portion of the above undesired will connections, and in view of such a situation the company's policy of paying for 60 per cent of the oil accepted, and storing the remainder for the account of the producer is destined to continue indefinitely. Humble Pipe Line Company handles the storage oil, and at the expiration of the first 30 days invoices crude owners from 10 cents per barrel pipe line gathering charges, plus two cents monthly storage, then two cents per barrel each ensuing month.

Crude nominations, aggregating 30,300 barrels daily, made for the East Texas field for December by Humble Oil & Refining Company would be less than the allowable of its own wells while the 37-barrel well allowable is in effect. The company has 870 completed wells.

Abandon Storage-Part Pay Plan in Northwest Texas

Fort Worth, Texas.—Humble Oil & Refining Company abandoned its part payment and storage plan in regard to outside connections in the North and West Central Texas districts effective December 1, and also resumed purchase of prorated allowable after having enforced a Sunday shut-down holiday on production

for nearly a year in many of the fields. Its total nominations for the above two districts have been increased from 8800 to 10,700 barrels daily, thus relieving owners of hundreds of stripper wells that had been subjected to severe proration penalties. The company had been paying for 60 per cent of the total oil accepted from outside connections, and diverting the remainder to the Humble Pipe Line Company for storage at the expense of the producer.

The new nominations for the four areas comprising the above districts by Humble Oil & Refining Company follow: Wichita Falls 2500 barrels; Ranger 3200 barrels; Shackleford 3500 barrels; and Fisher-Jones Counties 1500 barrels. No statement has been made as to what disposition will be made of oil accumulated since the part payment and storage plan was inaugurated September 12.

The East Texas field and the Texas Panhandle district are to remain on the part payment and storage plan. Humble Oil & Refining Company's December nomination for the latter district was placed at 3000 barrels daily, while those for East Texas field was reduced to 30,300 barrels daily, or less than its own production.

Continental Makes Good Showing on Debt Reduction

Ponca City, Okla.—Within three years and three months the Continental Oil Company of Delaware has reduced its funded and long term debts by $26,113,737. When the Marland Oil Company and the old Continental of Maine were combined July 1, 1929, to form the present company, obligations of this nature totaled $36,247,553. September 30, 1932 the company owed but $10,113,816. The total will be reduced still further by the end of the year.

Payments in excess of $26,000,000 have been accomplished from income and from cash resources.

Test Near El Campo Still Indicating Dome Conditions

Houston.—Wildcat activity in Wharton County was encouraged during the week by additional showings of gas and a small amount of oil in Smith and McDaniels' (Shell Petroleum Corporation's) Mitchell 1, well generally considered to have uncovered a new dome in the region 2½ miles northeast of El Campo on the southwest quarter of H.&T.C. R.R. Survey No. 8, Abstract No. 661.

At latest reports Mitchell 1 was drilling below 6049 feet logging consistently indications of domal conditions. In addition to numerous shows passed up without tests, the well has made four successful drill stem tests, all of which showed gas.

Other wildcats in the county which are being closely watched are Cullen and West's Hawes 1, a mile northeast of Hungerford, which is drilling below 4747 feet; Cullen and West's Hudgins 1, southwest of Hungerford and in the Alexander Jackson Survey, drilling below 4131 feet in sandy shale and lime; Gant and Teas' Laura Hahn 1, N. Mancha Survey, halted with a collapsed drill stem at 5555 feet.

Directors Consider Revival Of Tulsa Exposition

Oklahoma City.—Directors of the International Petroleum Association met Saturday, December 3, to consider the advisability of holding an International Petroleum Exposition and Oil Congress in Tulsa either in the spring or fall of 1933. The last exposition was held in October, 1930, and since that time directors of the association have felt that conditions in the industry were such that manufacturers and distributors of equipment should not be asked to join in an oil show.

W. G. Skelly, president of the exposition, informed directors of the Chamber of Commerce of the meeting and said, "Conditions in the oil industry have shown such a substantial improvement during the past 12 months as to possibily warrant the holding of a big oil show next year. However, that will be a matter for the board to decide."

Announcement of the board's decision probably will be made within the next few days.

East Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
JOINER AREA—		
American-Liberty Oil Co., R. W. Fair-Shell (100-ac) 10	8200	3653
Belrice Oil Co., C. Young (40-ac) 4	8000	3691
T. C. Adams & Rowe, N. L. Marville (19-ac) 1	*	3709
Cronn & Gracey, M. C. Thompson (16-ac) 2	8400	3656
Dyck Oil Co. & King, C. O. Crim (14-ac) 2	6000	3821
C. A. Everts Drl. Co., Joe Lee 1-B.	7500	3764
Gulf Prod. Co., A. H. Rayford (59-ac) 6	6500	3738
Jack Wiley (128-ac) 7	9600	3805
John W. Hooser (W. H. Whisenant, Rec.) G. W. Eaton (21½-ac) 5-B.	6500	3758
Humble O&R Co., A. D. Blackwell (325-ac) 11-A	8500	3644
A. D. Blackwell (80-ac) 7-B	9500	3662
Lesh Hill (60-ac) 3	9000	3741
H. A. Piercy (90.66-ac) 7-A	6000	3725
W. L. Price (466-ac) 26	8500	3807
J. H. Wooley (201-ac) 10	10,000	3688
H. L. Hunt Prod. Co., D. M. Bradford (100-ac) 8-B	300	3702
D. M. Bradford (55-ac) 1-F	400	3624
Kimble & Acre, E. B. Alford 2	500	3648
Mid-Kansas O&G Co., G. W. Moore (92-ac) 7	7000	3673
G. W. Moore (92-ac) 8	8500	3678
W. F. Reynolds et al, J. H. Henson (20-ac) 1	300	3628
Sibling & Williams, T. H. Goforth 1.	8400	3773
Sinclair Prairie Oil Co., Peter Tipps (230-ac) 12-B	10,000	3632
Southern Interstate Oil Co., C. C. Giles (14-ac) 3	8500	3694
Stanolind O&G Co.—Pure Oil Co., W. H. Siler (949.6-ac) 36	1500	3695
Sun Oil Co., O. W. Knight (264-ac) 13	7200	3634
The Texas Co., W. W. Henry (229-ac) 7	8000	3630
Tidal Oil Co., L. J. Pinkston (123-ac) 11	5000	3730
Graddy H. Vaughn et al, W. O. Alford (80-ac) 6	11,000	3833
Weaver-Crim Corp., Stone (Fee) (49-ac) 3	9000	3747
KILGORE AREA—		
Acme Oil Co., B. H. Bean-Humble (2-ac) 1	9000	3640
Carl Dunham et al, J. H. Scoggins-Republic (28-ac) 3-A	5500	3670
D. & H. Oil Corp., P. Howard 1.	8000	3635
East Texas Oil Ref. Co., A. Givins (22-ac) 4	8500	3672
Gulf Prod. Co., G. W. Culver (208-ac) 16	8200	3565
Griffin Davis (50-ac) 5	12,000	3594
S. B. Hall (50-ac) 4	9600	3665
K. Hughes & Foley, Adkins (9-ac) 4	8500	3637
Humble O&R Co., J. A. Knowles 10.	7200	3624
Ben Peterson (50-ac) 3	7500	3600
Jones-O'Brien, Inc., Hughey-Ross (127-ac) 11	8000	3568
Luling O&G Co., V. Barton (2½-ac) 2	13,000	3695
Magnolia Pet. Co., Nancy Radford (100-ac) 4	10,000	3636
John E. Mabee, Inc., M. T. Cole-Shell (130-ac) 7	8400	3554
Magnolia Pet. Co., Jesse King (33¾-ac) 7	10,500	3677
Pearce & Moore, H. T. Elder (½-ac) 1	1500	3558
Rajo Oil Corp., A. McComic-Shell (108-ac) 5	4000	3714
Rhoads Drl. Co., River 2, Tr. No. 4.	9000	3551
Ruston Drl. Co., River 2, Tr. No. 3.	9200	3560
River 4, Tr. No. 3	9500	3564
Sam P. Shelburne et al, Crim Mercantile-Gulf (70-ac) 3	2500	3712
Sinclair Prairie Oil Co., A. A. King (337-ac) 27-B, Tr. No. 1	11,000	3515
A. A. King (50-ac) 2-B, Tr. No. 4	9000	3492
Wheelock & Collins, D. Wills (220-ac) 12	8000	3658
Y Oil & Gas Co. (was W. A. Jones), Grif Davis 2	9400	3626
LONGVIEW AREA—		
Jim Cloud, Inc., E. E. Anderson (14-ac) 2	15,000	3680
East Texas Oil Ref. Co., A. Christion (65-ac) 7	12,000	3662
W. J. Hineman & Guy (52-ac) 7.	10,500	3648
Heydrick-Camp Drl. Co., D. C. Shelton (2½-ac) 1	8500	3737½
Humble O&R Co., T. M. Armstrong 10	11,000	3602
W. W. Holland (245-ac) 13	12,000	3629
Mary Killingsworth (77-ac) 9	9600	3594
S. H. Killingsworth-F. R. Jackson et al, State (1.53-ac) 1-B	9500	3505
C. A. Lester & Duffield, J. Moore-Shell (66-ac) 4	8000	3589
Magnolia Pet. Co., E. H. Brawley (80-ac) 10	9600	3512
W. E. Jones (99.92-ac) 9	11,000	3670
Mansion Oil Co., T. A. Webb (34-ac) 5	10,000	3725
Pitkin-Goldston Oil Co. & Mallard, M. Bonner (23-ac) 3-A	9000	3617
Roeser-Pendleton, Inc., Satterwhite (50-ac) 5-B	8400	3687
Shell Pet. Corp., W. T. Burnside (160-ac) 13	9600	3547
Stroube & Stroube, R. J. Mackey (320-ac) 2	10,000	3583
Sun Oil Co., J. T. Loden (100-ac) 8.	9600	3669
VAN FIELD—		
Pure Oil Co., R. E. Cade (50-ac) 6.	9000	2951

(See next page)

East Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
ANDERSON COUNTY—		
W. H. Roeser et al, J. B. Hanks 1..	*	5404
RUSK COUNTY—		
Fred Shields-Florence Oil Co., W. Buckner 1	*	4285
FREESTONE COUNTY—		
W. A. Reiter & Neversuch Oil Co., O. Burleson 1	*	3730
SMITH COUNTY—		
J. O. Allen et al, Fee 1	*	3780

Wildcat Drilling Report

(Wells shut down not included)

ANDERSON COUNTY—Barclay et al's J. C. Beard 1, J. Trimmer sur, dk. W. H. "Bill" Roeser, Roeser & Pendleton, Inc., Tidal Oil Co. et al's J. B. Hanks (105-ac) 1, Anderson Co. School Land sur, elev. 449 ft, Pecan chalk 3097-3254 ft, Austin chalk 4210-4568 ft, top Woodbine series 4774 ft, top red beds 5117 ft, dry and abn 5404 ft.

BOWIE COUNTY—Roy E. Anderson et al's A. Y. Breckenridge (464-ac) 1, M. Dykes sur, elev 352 ft, Pecan chalk 1362-1805 ft, tested dry 2816 ft, dr 2830 ft. Tom Bell-W. J. Dobbs & Fred S. O'Neill's Mrs. T. M. Moss (465-ac) 1, O. D. Watson sur. Ajo Oil Corp. et al's Nichols-Daniels (167-ac) 1, Hugh B. Shaw sur, lcn. W. S. Langford et al's W. W. Whybark (100-ac) 1, J. H. Dyer sur, elev 377 ft, sd 2250 ft.

CHEROKEE COUNTY — Barclay-Taite & Deason's A. T. O'Neal (13-ac) 1, J. M. Procella sur, dk. Bridges-Chandler et al's Berryman (300-ac) 1, H. Kimble-Dean sur, elev 399 ft, sd 1000 ft. Loring Oil Co.'s F. M. Swearingen 1, Oliver Lund sur, elev 370 ft, top Midway 2490 ft, top Pecan 3680 ft, dr 3750 ft. Saranac Oil Co.'s P. E. Jones (132-ac) 1, J. D. Hamilton sur, materials. Elliott-Sikes & Wilson-Stubbs Oil Corp.'s M. F. Ragsdale (53-ac) 1, J. P. Wolfin sur, elev 520 ft, co 3600 ft.

ELLIS COUNTY—Armstrong Bros. et al's Cook 1, S. Frederick sur, sd 460 ft. Geo. Beasley et al's F. Borek 1, R. Pena sur, rig.

FRANKLIN COUNTY — Franco Oil Co., (J. F. Mills-L. S. Harper-A. P. McGee) et al's L. S. Harper (118-ac) 1, W. N. Dawson sur, elev 356 ft, top Pecan chalk 1320 ft, cemented off liner, td 3404 ft.

FREESTONE COUNTY — Clyde Creighton & Co.'s W. A. Holley (80-ac) 1, A. B. & M. sur A-61, top Pecan chalk 3105 ft, sd 3670 ft.

HENDERSON COUNTY—McCormick & B. L. Green et al's M. H. Gossett (103-ac) 1, L. D. Stover sur A-87, elev 341 ft, top Taylor 1450 ft, top Austin chalk 2347 ft, top Woodbine sand 3267 ft, co 3328 ft. Superior Oil Co.'s Cole & Faulk 1, H. Z. Farmer sur, dk. H. H. Myers et al's M. E. Olson (80-ac) 1, Geo. Wilson sur, elev 512 ft, Pecan chalk 3070-3245 ft, cem 6⅝s inch cas 3701 ft, cored sand 3711-19 ft. W. F. Bridwell et al's C. T. Jackson (25-ac) 1, J. Levins sur, lcn.

HILL COUNTY—T. J. Spikes et al's M. H. Davis (55-ac) 1, J. R. Alexander sur, Austin chalk 727-1030 ft, sd 1550 ft.

HOPKINS COUNTY—Burgess & Simpson's Mt. Vernon Nat'l Bank 1, M. E. & P. Ry. sur, elev 385 ft, sd 1410 ft. Jack Denny & Y. E. Hildreth's Cole 1, Berry Merchant sur, top Austin 2274 ft, dr 2800 ft. E. P. Corley et al (was E. L. Chapman's) J. D. Jumper 1, Jas. Webb sur, co 60 ft. Harmony Oil Co. (J. F. Roark's) J. L. Taylor 88-ac) 1, John Polk sur, sd 540 ft.

HUNT COUNTY—Arthur Kelsey et al's W. R. Terry (139-ac) 1, Jas. Roads sur, lcn.

KAUFMAN COUNTY—Milhoan Drl. Co. & Paul L. Meaders et al's T. C. Coleman (259-ac) 1, W. G. Gibbard sur, elev 565 ft, Austin chalk 2460-2938 ft, dr shale 3060 ft. Tom Nash et al's Mrs. C. H. Gardner (6-ac) 1, E. A. Ferguson sur, lcn. T. L. Winn et al's J. A. Nash 1, Trevino sur, top Austin 1285 ft, dr 1930 ft. J. M. Scott-Stanley Darrill et al's S. Pannell (649-ac) 1, A. Cherino sur, sd in dry sandy-shale 2407 ft.

LEON COUNTY—Leon County Oil Co.'s John Morris (200-ac) 1-A, A. F. McWhorter sur, sd 2540 ft. Shell Pet. Corp.-J. R. Black-Penn Oil Co. et al's Wm. Phillips (160-ac) 1, E. A. Swayze sur, elev 423 ft, Pecan chalk 4135-4181 ft, Austin chalk 4841-5570 ft, cem 7-in cas 6039 ft, cap rock 6052-54 ft, hard richly saturated oil sand 6054-57 ft, reduced 6057 ft, hard oil sand 6057-61 ft, soft oil sand 6061-68 ft, shale 6068-87 ft. John P. Sheffler & Allday's W. R. Thompson (197-ac) 1, N. M. Allen sur, sd 2170 ft.

LIMESTONE COUNTY—C. M. Joiner Pet. Corp.-Miller Drl. Co.'s W. Stephenson (54-ac) 1, Geo. Gentry sur, top Austin chalk 3050 ft, fsh 3145 ft.

MORRIS COUNTY — Buchanan-Burkhalter-J. K. Wadley et al's Staggers (65-ac) 1, Forbes & Nelson sur, elev 370 ft, hard Pecan chalk 2526-3020 ft, Austin chalk 3483-3506 ft, pulled tubing to co, td 3692 ft. Grover Hart et al's Walcott-Lott (577-ac) 1, D. A. Russell sur, sd 1380 ft. C. M. Joiner Pet. Corp.-Harris Drl. Co.'s C. D. Brown 1, Wm. M. Coffey sur, dk.

RED RIVER COUNTY—Concord Oil Co.'s J. R. Dellahunty 1, I. Moore sur, dr 2760 ft. Johnson Drl. Co.'s F. A. Antone 1, R. Gambill sur, lcn. L. G. Priest et al's R. W. Peek (220-ac) 1, Abram Wagley sur, dk.

ROBERTSON COUNTY — C. A. Everts Drl. Co. et al's Cook 1, H. Henry sur, dr 3545 ft.

RUSK COUNTY—John Keegans et al's R. L. Needham 1, J. H. Chambers sur, sd 1415 ft. Bodine et al's D. W. Cooper 1, J. C. de la Vena sur, dk. G. F. Hudson et al's J. Phillips 1, N. Villareall sur, dr 1120 ft. Fred W. Sheilds-Florence Oil Co.'s W. Buckner (40-ac) 1, John E. Davis sur, elev 418 ft, Pecan chalk 3220-3590 ft, Austin chalk 4035-4200 ft, top Woodbine series 4195 ft, dry and abn 4285 ft.

SMITH COUNTY—McRobie et al's C. P. Hamilton (259½-ac) 1, J. Rector sur, sp and sd. Mundt & Mount et al's Murray (65-ac) 1, Marshall University sur, elev 579 ft, Navarro 2858-79 ft, Pecan chalk 3496-4000 ft, recovered junk, co 4680 ft.

UPSHUR COUNTY — Cranfill-Reynolds et al's Berry Bros. (412-ac) 1, J. P. Hutchinson sur, elev 333 ft, Pecan chalk 2442-2890 ft, Austin chalk 3694-3724 ft, top sand 3753 ft, testing 3760 ft. Frank Buttram et al's D. F. Smith 1, C. H. Cooper sur, rig. F. W. Maddox et al's D. A. Fleet (1-ac) 1, C. H. Cooper sur, elev 336 ft, top broken Pecan chalk 2370 ft, top hard chalk 2430 ft, trying shut off water 3676-82 ft. Newsom & Orr (was B. L. Watson's) D. F. Smith 1, J. R. Davis sur, sd 1865 ft. Tucker & Van Fleck's S. J. Mangham (564-ac) 1, J. J. Hooper sur, sd in shale 3828 ft. J. K. Wadley-J. P. Evans & C. Lyons' W. S. Jones (100-ac) 1, Jas. M. Dunn sur, elev 263 ft, top broken Pecan chalk 2333 ft, hard chalk 2402-2977 ft, top Austin chalk 3557 ft, cored water sand 3680-81 ft, sd in oil sand 3686-3701 ft; Chatham (14-ac) 1, McKee sur, dk.

VAN ZANDT COUNTY—Gardner Bros. & Roy C. Ling's J. Leonard (53½-ac) 1, P. Mason sur, elev 511 ft, top Woodbine sand 4240 ft, top lower Cretaceous 4927 ft, top Georgetown lime 4950 ft, dr 5545 ft. H. W. Peden et al's W. S. Brannon (45-ac) 1, J. Goodman sur, dk.

WOOD COUNTY — DeGenther & F. H. Zeigen et al's M. L. McClain (66-ac) 1, Sam Brooks sur, elev 455 ft, Pecan chalk 2553-2740 ft, sd 3855 ft. Hudson & Shelton & Talko Pet. Corp.'s C. S. Ross (86-ac) 1, F. L. Smith sur, elev 359 ft, top Pecan chalk 2892 ft, sd 3840 ft. Hull & Sharp (was W. B. Saulsburys) et al's T. H. Peterson (320-ac) 1, W. B. McNutt sur, Abst. 418, dr 2115 ft. F. B. Parriott & J. S. Hanlon's J. H. Harvey (was Stuart) (1964-ac) 1, M. H. Ussery sur, elev 604 ft, Pecan chalk 2984-3165 ft, Austin chalk 3960-4132 ft, dr shale 4286 ft. D. Replogle & Sinclair Prairie Oil Co.'s John C. Saner 1, Blk. 19, Jas. M. Candler sur, elev 562 ft, top Pecan chalk 3067 ft, dr 3200 ft. Wood County O&G Co.'s Guy Davis 1, John R. Clute sur, dr shale 4115 ft.

East Texas Border Counties

Completions

Company, Well and Location	Initial Production Bbls.	Depth
HARRISON COUNTY—		
Ryan Consolidated Oil Corp., J. M. Furrh 1, F. O'Neal sur.....	*	5147
MARION COUNTY—		
Wroe-Nichols, Henderson 1, Geo. Bledsoe sur		3636

Wildcat Drilling Report

(Wells shut down not included)

HARRISON COUNTY—Great Eastern Oil Co., W. L. Rudd 1, Wm. Steele sur, sd 1550 ft.

MARION COUNTY—Baunauch Dev. Co., Miller 1, H. Fulgram sur, sd 4550 ft. Starling & Preston, Henderson 1, R. Bennington sur, dr 1750 ft. Green Smitherman et al, Lindsay 1, Alex Albright sur, co to deepen, td 2327 ft.

PANOLA COUNTY—Carter et al, Wooten 1, P. Martin sur, materials.

SHELBY COUNTY—K. H. Francis, Jno. Mims 1, Mary Smith sur, sd 3420 ft. General Minerals Corp., Pickering 2, D. S. Height sur, sd for repairs 3675 ft. Neil Lease & Oil Well Synd., W. P. Harvey 1, W. P. Harvey sur, materials.

Texas Permits

ARCHER COUNTY—Morris & Dunn, Graham, J. Morbitzer, 200, 1, B 62, C&P sur, 330 ft fr s and w lines. C. C. Christian, Olney First Natl. Bk., 40, 1, J. Poitevent sur, 150 ft n and w lines. Benson Bros., Bowie, J. L. Prideaux, 60, 1, J. Ostane sur, 150 ft fr s and w lines. Gilliland-Rosser Oil Co., Wichita Falls, J. S. Walsh, 56, 5, 2417, TE&L sur, 300 ft n of No. 4. Geo. L. Pace, Dallas, F. C. Green, 160, 7, J. Levins sur, 400 ft fr w and 200 ft fr s line. J. G. Steele, Wichita Falls, Keyes, 20, 1, J. M. Swisher sur, 150 ft fr s and e lines. E. C. Norwood et al, Wichita Falls, F. C. Green, 40, 1, J. Levins sur, 200 ft fr n and w lines. Krahenbuel et al, Archer City, M. B. Ray, 30, 2, Wm. Henry sur, 150 ft fr w and 227 ft fr s line. Bonner Oil Co., Wichita Falls, J. E. King, 40, 1, Wm. Henry sur, 150 ft fr n and 450 ft fr w line.

AUSTIN COUNTY— Sun Oil Co., Beaumont, R. W. Theuman, 125, 1, J. DeLeon sur, 990 ft fr n and 924 ft fr e line.

BEXAR COUNTY—Chiquita Oil Co., San Antonio, A. C. Hunter, 393, 3, S 14, J. Martinez sur, 660 ft e of No. 2.

BROWN COUNTY — Casper & English, Brownwood, H. L. Leach, 37, 4, M. Flores sur, 300 ft n of No. 2. E. M. Curry, Pioneer, R. Hickman, 40, 1, 783, T. Benson sur, 190 ft fr w and 160 ft fr s line.

CALLAHAN COUNTY — Henry Johnson, Fort Worth, E. Hayden, 80, 10, B 115, Univ. Lands sur, 405 ft fr e and 200 ft fr s line.

CHAMBERS COUNTY—Sun Oil Co., Beaumont, J. Wilburn, 65, 15, Wm. Hodge sur, 343 ft fr n and 420 ft fr w line.

COOKE COUNTY—Clint Jacobs, Pilot Point, Fee, 80, 1, R. Jones sur, 150 ft fr s and w lines. E. J. Ruwaldt, Gainesville, J. Fisher, 49, 1, J. Barnett sur, 150 ft fr w and 300 ft fr s line, blk 3.

CLAY COUNTY——W. N. Maer, Wichita Falls, S. E. Oliver, 320, 1, 2628, TE&L sur, 37 ft fr e and 1800 ft fr s line of sec.

DUVAL COUNTY—Highland Oil Co., San Antonio, A. Lundvall, 80, 4, Sec. 42, 660 ft e of No. 2. Byrd Oil Corp., San Antonio, P. T. Wright, 132, 4, 101, 756 ft e of No. 2. W. T. Daniel, San Antonio, J. F. Smith, 80, 1, Sec. 46, 330 ft fr n and w lines. Texas Co., Houston, W. C. Riggs, 80, 3, Sec. 46, D. Seago sur, 200 ft fr n and e lines of ne¼ nw¼. C. W. Freer, 80, 2, S 45, J. Poitevent sur, 330 ft fr s and 990 ft fr w line, ne¼.

GREGG COUNTY—Blue Star Oil Co., Longview, Tract 7, H, Sabine sur, 656 ft ne of No. G; Tract 6, D, Sabine sur, 677 ft ne of No. E. Raddatz & Travis, Amarillo, Tract 8, 85, 7, Sabine sur, south offset to Shell-Burnside No. 4. S. P. Shelburne, Oklahoma City, Crim, 70, 4, W. P. Chism sur, 721 ft fr s and 702 ft fr w line. F. V. Hughes, Tyler, S. Carr, 3, 1, M. McMurry sur, 195 ft n and 172 ft fr e line. Bonds & Dillard Drilling Co., Longview, D. M. Meyer, 41, 3, C. Rhodes sur, w offset to Shasta No. 1; 4, w offset to Shasta No. 2. Jones-O'Brien, Inc., Shreveport, La., J. Prothro, 8½, 3, Jno. Blair sur, 330 ft e of center of w line; M. Prothro, 8½, 3, Jno. Blair sur, 770 ft e of center of w line. H. W. Niblack, Dallas, S. Carr, 3½, 1, M. McCurry sur, 180 ft fr w and 226 ft fr s line. W. R. Jones, Wichita,

Kans., Doby, 22, 3, M. Irwin sur, 150 ft fr n and 619 ft fr w line. W. F. Turner, Longview, A. Jones, 63, 6, G. W. Hooper sur, 660 ft w of No. 3. Sells Pet. Co., Inc., Tyler, R. Fisher, 63, 7, W. G. Painter sur, 656 ft s of No. 1. Fair-Thompson, Tyler, A. H. Tubbs, 51, 3, D. Sanchez sur, 330 ft fr n and e lines; 4, 275 ft fr n and 130 ft fr w line; 5, 198 ft e of center of w line; 6, 330 ft e of center of w line. Burk Royalty Co., Burkburnett, D. Carr, A, 34, 3, M. McCurry sur, 245 ft w and 170 ft fr s line. Shell Pet. Corp., Dallas, C. Fisher, 134, 3, Jno. Ruddle sur, 660 ft ne of No. 1; H. Hampton, 169, 9, D. Ferguson sur, 791 ft e of No. 1; W. T. Burnside, 160, 14, F. W. Johnson sur, 1321 ft fr n and 922 ft fr e line; M. C. Salter, 38, 4, D. Sanchez sur, 650 ft fr w and 330 ft fr s line; G. H. Slaton, 123, 10, G. W. Hooper sur, 330 ft fr s and w lines; J. Douglas, A, 91, 8, W. P. Chisum sur, 672 ft ne of No. 7; A. N. King, 160, 11, G. A. Thomason sur, 850 ft fr w and 801 ft fr s line; J. B. Watson, 384, 26, J. S. Caruthers sur, 781 ft e of No. 13. Sun Oil Company, Dallas, M. T. Cole, 266, 18, A. Park sur, 840 ft s of No. 12; 17, 1600 ft ne of No. 16; 16, 660 ft s of No. 3; 15, 660 ft n of No. 4; 14, 690 ft s of No. 13. Atlantic Oil Prod. Co., Dallas, T. B. Harris, 91, 6, Castleberry sur, 715 ft se of No. 5. Texas Co., Shreveport, La., T. W. Lee, 210, 14, F. W. Johnson sur, 645 ft fr w and 150 ft fr s line. Magnolia Pet. Co., Dallas, M. T. Cole, 100, 6, T. Johnson sur, 309 ft ne of No. 2. Amended location. Humble Oil & Refg. Co., Houston, J. F. Bowles, 100, 8, D. Ferguson sur, 869 ft fr n and 120 ft e line. Gulf Prod. Co., Houston, G. W. Culver, 144, 18, Jno. Wilkinson, se corner.

GALVESTON COUNTY — Yount-Lee Oil Co., Beaumont, E. K. Cade, 460, 33, N. Fitzsimmons sur, 3505 ft fr n and 1615 ft fr e line; Fee, 3, M. Dunman sur, 150 ft e of center of w line.

HENDERSON COUNTY—Superior Oil Co., Dallas, Faulk-Coleman, 165, Z. M. Monk sur, 100 ft fr s and e lines.

HARDIN COUNTY—Rio Bravo Oil Co., Houston, Fee, 158, J91, C. F. S. Jorditt sur, 190 ft se of No. 86.

HUTCHINSON COUNTY—Stanolind Oil & Gas Company, Fort Worth, Ware A, 160, 4, s 124, B 4, I&GN sur, 330 ft fr s and w lines.

HOPKINS COUNTY—Y. E. Hildreath, Fort Worth, R. G. Cole, 47, 1, B. Merchant sur, nw corner of blk 2.

IRION COUNTY — Straughan & Adkin Bros., Mertzon J. Kinser, 400, 2, S 691, H. Cooper sur, 2920 ft fr n and 1500 ft fr e line.

JACK COUNTY—A. C. Parks, Wichita Falls, L. J. Webb, 33, 1, E. Smith sur, 150 ft, fr n and w lines. Panhandle Refg. Co., Wichita Falls, M. B. Cook, 73, 1, J. Young sur, 330 ft fr s and e lines. E. B. Fulton, Jacksboro, L. W. Fields, 50, 1, J. P. Kittrell sur, 330 ft fr s and e lines. McKee Drilling Co., Fort Worth, J. T. Hunt, 160, 3, W. Britt sur, 1170 ft fr s and w lines.

McMULLEN COUNTY—J. A. Tarver, San Antonio, J. Dickinson, 80, 1, No. 45, 150 ft fr s and e lines.

MATAGORDA COUNTY—United North & South Dev. Co., San Antonio, J. V. Stoddard, 20, 1, J. C. Keller sur, 25 ft fr n and w lines of blk 19.

MOORE COUNTY—Canadian River Gas Co., Amarillo, J. J. Perkins, A, 2, S 54, B 47, H&TC sur, 3250 ft fr n and 200 ft e line of sec.

MONTGOMERY COUNTY—Humble Oil & Refg. Co., Houston, C. L. Dobbins, 229, 6, Ransom House sur, 466 ft fr s and e lines; 5, 1547 ft fr e and 466 ft fr s line; A. Morehead, 57, 1, T. Trevathan sur, 541 ft fr n and 466 ft fr e line of sur; M. E. Emory, 400, 2, No. 13, W. C. Ry. sur, 517 ft e of center of w line; O. L. Alexander, D, 2, J. McHorse sur, 368 ft fr e and 300 ft fr s line; E. Moorehead, 65, 1, L. A. Lang sur, 399 ft fr n and 356 ft fr w line; H. Gallemore, 16, 1, J. A. Davis sur, 97 ft ne of center of sw line. Tidal Oil Co., Kilgore, J. W. Lewis, 665, 3, C. B. Stewart sur, 1311 ft fr n and 467 ft fr e line; 4, 1866 ft e of No. 2. Hooper Oil Corp., Houston, W. N. Hooper, 3 No. 10, I&GN sur, 758 ft n of No. 4; 4, 795 ft n of No. 5; 5, 466 ft n of center of s line. Midland Oil Co., San Antonio, V. Walters, 108, 1, W. Strickland sur, 1398 ft fr n and 466 ft fr e line.

RUSK COUNTY—Republic Prod. Co., Houston, H. P. Leverett, 109, 5, W. W. Simms sur, 330 ft e of center of w line. Crabtree, Jeffries & Estes, Tyler, C. C. Giles, 32, 3, M. J. Pru sur, 340 ft fr n and 330 ft fr w line. Maude Bledsoe, Tyler, Bunker Hill Sch., 1, 1, T. Smith sur, center. F. A. Trautman, Dallas, D. M. Bradford, 5, 1, B 16, J. Ximinez sur, 330 ft e of center of w line. Martin & Cockburn, Arp, A. Thrash, 12, 2, E. Collard sur, 285 ft fr s and 330 ft fr w line. W. B. Hamilton, Wichita Falls, L. A. Gambrell, 54, 5, R. McAnulty sur, 330 ft fr n and 110 ft fr e line. H. W. Whisenant, G. W. Eaton, 21, 6, F. Cordova sur, 450 ft n of No. 3. Champlin & Bass, Inc., Dallas, J. R. Alford, 7, 2, F. Cordova sur, 135 ft fr e and 100 ft fr s line. Humble Oil & Refg. Co., Houston, J. N. Peterson, 210, 15, I. Ruddle sur, 341 ft fr s and 1476 ft fr e line; M. Kangera, A, 330, 25, M. J. Pru sur, 660 ft n of No. 3; A. L. Walker, 124, 7, F. Cordova sur, 330 ft fr e and 990 ft fr s line; H. White, B, 132, 7, J. M. Scott sur, 1913 ft fr n and 330 ft fr e line; J. W. Turner, 400, 14, J. M. Scott sur, 1895 ft fr w and 990 ft fr s line. Shell Pet. Corp., Dallas, R. Russell, 126, 12, R. W. Smith sur, 1142 ft fr w and 330 ft fr s line; 11, 663 ft se of No. 10.Gulf Prod. Co., Houston, I. Holt, B 69, 8, Geo. Berry sur, 330 ft fr n and 798 ft fr e line; C. M. Jernigan, 128, 10, W. W. Simms sur, 195 ft sw of No. 1. Mid-Kansas Oil & Gas Co., Shreveport, La., M. Kangera, 105, 9, P. Tipps sur, 761 ft e of No. 5;W. T. Grissom, 842, 38, P. Gorman sur, 1320 ft n of No. 21; 39, 660 ft n of No. 21; 37, 330 ft fr n and 798 ft fr e line of sur; 36, 200 ft n and 150 ft fr e line of sur; 40, 330 ft fr s and w lines of sur; Clay Hrs., 130, 7, M. V. Pena sur, 990 ft fr w and 330 ft fr s line. Sun Oil Co., Dallas, Clay Hrs., 120, 4, J. Ximinez sur, 330 ft fr w and 1134 ft fr s line. Stanolind Oil & Gas Co., Fort Worth, W. H. Siler, 983, 40, T. M. White sur, 1360 ft fr n and 330 ft fr e line of sur.

SMITH COUNTY—Smith, Guerin & King, Tyler, S. S. Cook, 20, 4, J. Vargas sur, 330 ft fr s and e lines. McCulloch Oil Co., Tyler, Burnett-Smith, 12, 2, Jas. Jordan sur, 148 ft n of center of s line. Taubert & McKee, Tyler, T. O. Wright, 4, 2, J. Vargas sur, 67 ft s of center of n line. Mid-Kansas Oil & Gas Co., Shreveport, La., J. H. Sharp, 482, 19, M. S. Coy sur, 990 ft fr n and 1025 ft fr w line; 18, 2345 ft fr w and 990 ft fr n line. Sun Oil Co., Dallas, J. A. Layne, 103, 7, S. Dexter sur, 201 ft e and 330 ft fr s line.

SHACKELFORD COUNTY—A. R. Bissey, Albany, H. H. Horton, 37, 2, 818, TE&L sur, 300 ft nw of No. 1.

UPSHUR COUNTY—T. J. Pounds, Jr., Gilmer, M. C. Bell, 1, 1, B. Holloway sur, center. Frank Buttram, Oklahoma City, Okla., D. F. Smith, 79, 2, C. H. Cooper sur, 85 ft fr n and w lines. Clark, Cowden & Sikes, Duncan, Okla., J. W. Free, 37, 3, D. Ferguson sur, 330 ft fr e and 550 ft fr s line. W. D. Ambrose, Longview, D. C. Shelton, 15, 1, Wm. King sur, 250 ft fr w and 156 ft fr s line; 2, 330 ft n of center of s line; 3, 185 ft fr e and 160 ft fr s line. Humble Oil & Refg. Co., Houston, J. Phillips, 75, 5, H. H. Edwards sur, 1171 ft fr e and 317 ft fr s line. Sun Oil Co., Dallas, Jno. Hargraves, 200, 12, M. Mann sur, 792 ft fr n and 330 ft fr w line.

VAN ZANDT COUNTY—Pure Oil Co., Dallas, B. W. Russell, 168, 4, D. Rose sur, 150 ft fr n and 225 ft fr e lines; M. Elliott, 101, 3, A. H. Wiley sur, 225 ft fr n and 200 ft fr w line; R. L. Wells, 138, 15, M. Gross sur, 80 ft fr w and 550 ft fr s line.

WEBB COUNTY—Milam Drilling Co., Laredo, Duval Ranch, 1, No. 3, Z. C. S. L. sur, 2020 ft fr e and 5000 ft fr s line.

WHARTON COUNTY—G. H. Laughter, Boling, R. C. Harrison, 66, 1, S. F. Austin sur, west central part of lease.

WICHITA COUNTY — Richard Kollman, Iowa Park, C. A. Mertins, 120, 10, BS&F No. 4, 450 ft fr w and 150 ft fr s line. S. H. Walton, Wichita Falls, Gulf, 70, 4, S 24, H&GN sur, 150 ft fr s and w lines.

WILBARGER COUNTY—Texas Co., Wichita Falls, W. T. Waggoner, A, 409, S 7, B 13, H&TC sur, 500 ft se of No. 399.

YOUNG COUNTY—Deininger & Leporin, Dallas, G. T. Shelton, 40, 1, S. Tynes sur, 150 ft fr n and e lines. T. G. Shaw Oil Corp., Fort Worth, J. Marshall, 95, 1, 3403 TE&L sur, 1094 ft fr w and 150 ft fr s line. W. R. Stafford et al, Graham, G. P. Stewart, 1, 1493, TE&L sur, 150 ft fr s and e lines. Sid Swink, Cisco, E. C. Keith, 120, 6, 267, TE&L sur, 750 ft fr e and 450 ft fr s line. Iron Mountain Oil Co., Fort Worth, E. P. Tatum, 185, 15, 1908, TE&L sur, 1100 ft fr n and 1500 ft fr e line. W. R. Cooper, Olney, J. R. Wilson, 55, 2, 162, TE&L sur, 150 ft fr w and 550 ft fr s line. Brazleton Bros. & Deats, Graham, Barnett-Gibbs, 40, 2, 2245, TE&L sur, 216 ft fr w and 450 ft fr s line. Worth Oil Co., Fort Worth, G. G. Garrett, 140, C3, Y. C. S. L. No. 2, 1050 ft fr n and 1300 ft fr e line. Kleiner & West, Cisco, C. W. Johnson, 75, 5, E. W. Sargent, 300 ft s of No. 3. Hunter Oil Corp., Wichita Falls, Bloodworth, A, 35, 6, 158, TE&L sur, 150 ft fr n and 407 ft fr w line.

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KEEP PURE DRINKING WATER ALWAYS HANDY

SOUTH TEXAS

North Government Wells and Tuleta Fields Get Extensions. Bob Rose Making Another Well in Caldwell.

EARL POST, *Staff Representative, San Antonio*

Drill Stem Test Indicates Tuleta Production Widened

San Antonio, Texas.—Tabor, O'Neill and Howeth's J. P. Harris 1 will widen the Yegua series production in the Tuleta field, Bee County, if the drill stem test made December 1 has any bearing. The well was tested from 4315-22 feet, where it showed 11 fourbles of oil, four fourbles of brackish mud and 100 pounds pressure in 10 minutes, and preparations are being made to complete.

The well is located 150 feet from the north and west lines of Block 13, Section 13, about one fourth-mile southeast of Dirks Brothers' Fee 1, which is a producer in the same horizon. The Dirks well was the discovery of the new horizon, which is about 200 feet below the regular level of the field.

Wallace & Bowles' Harris 1, Block 12, Section 13, has a sand at 4109-20 feet, where it is in process of completion.

One mile west and south of production, a wildcat is reaching an interesting depth. It is Grisham et al's A. J. Hill 1, Section 11 of the W. G. Ragley survey, which is drilling at 3000 feet. Another wildcat of interest is C. R. & M. and O'Neill's Stolzfus 1, 1000 feet northeast of production. It has spudded.

Proceed With Development Of O'Conner Heavy Oil

San Antonio, Texas.—Humble Oil & Refining Company made two more locations on its D. M. O'Conner block in Refugio and Victoria Counties. Derrick is being erected for O'Conner 4, a short distance across the Brownsville railroad and Highway No. 128 from O'Conner 3, and in Refugio County. The fifth well is across the county line in Victoria, just across the river and between the highway and the railroad.

It appears that Humble Oil & Refining Company is contemplating an immediate development of the low gravity oil horizon discovered several days ago in O'Conner 3, which is producing around 200 barrels of 21 gravity oil from 3136-48 feet.

The company has a 2300-foot gas sand, producing in O'Conner 2, and had a 4100-foot producing level in O'Conner 1, which was drilled deeper and abandoned after experiencing sand and water trouble.

In the same general trend, but several miles away, Slick-Seeligson, Inc., is plugging back from 6770 feet in McFadden 2, J. Varin survey, Victoria County, to a sand at 5176-84 feet, which showed 800 pounds pressure in three minutes on a drill stem test. This well was a gasser at 4496 feet, but finally deepened to the 6770-foot level.

Another well of interest is Union Oil Company's Keeran 2, M. de Leon survey in the Keeran area, which tested salt water at 5334 feet and is drilling deeper. The test showed some gas, however, and is being carried to the lower sands.

Another new location in Victoria County is the Quintana Petroleum Company's McCormick 1, which is to be a deep test. Materials are being moved in. The well is on a block of 11,500 acres near Nursery, 6500 of which was assigned by Eagle Oil Company and 5000 out of the Jay Welder ranch.

Caldwell Test Will Make Well After Much Trying

San Antonio, Texas.—After several months work, Bob Rose apparently will make some sort of a well in his Walker 3 (2-B) Solomon Seal survey, Dunlap pool, Caldwell County. The well is at a total depth of 2372 feet in the top of the Georgetown, where it is standing 1500 feet in oil.

This well originally was tested from 2091-2255 feet, where it had 10 breaks in the Austin chalk. Several heavy shots failed to bring production about and it was deepened to 2372 feet. The well was cleaned out and swabbed.

North Government Wells Gets Another Extension

San Antonio, Texas.—A slight extension to the east was given North Government Wells field, Duval County, by Byrd Oil Corporation's P. T. Wright 3, which flowed 12 barrels an hour initial from 2293-2303 feet. It is 810 feet from the west line and 330 feet from the north line of the section.

Main activity in the field at this time centers around the southwestern section, Section 45, where several important tests have been started. One is by Seacord & Putnam between the southwestern extension of the North field and the Government Wells discovery field. This well will tend to link the two fields.

Magnolia Petroleum Company's J. T. Johnson 5, 330 feet from the west line and 420 feet from the south line of the 160-acre tract in Section 44, just southeast of the discovery producer, is a gasser from 2306-45 feet. It is interesting to note that the well cut 39 feet of sand.

Three miles northeast of the field, Sun Oil Company has reached 2386 feet in Duval Ranch 1, Section 78, where it showed salt water. The well is now being plugged to 2165 feet to be again tested in the Government Wells horizon, where it recently gave promise of making a producer.

Saxet Plans Test of 4900-Foot Sand at White Point

San Antonio, Texas.—Saxet Oil Company will make another test of the 4900-foot sand at White Point, San Patricio County, which was discovered late in 1930 in Rachel 17. The new well is rigging up.

The Rachel 17 was first completed November 27, 1930, at 4892-4902 feet, making 30,000,000 cubic feet of gas and spraying 100 barrels of oil. It was carried to 6000 feet and plugged back to this sand where it has been producing consistently at the rate of about 60 barrels a day ever since.

Second Shallow Sand in Starr County Field

San Antonio, Texas.—A second shallow sand, 100 feet below the regular horizon, has been opened in the Los Olmos shallow field of Starr County by Tarver and Nance. It is the Kelsey-Bass 7, NW SW SE Block 7, Porcion 75-76-77, in the southern end of the pool.

The well showed about 15 barrels from 439-50 feet and was deepened to 551-64 feet, where it came in flowing 190 barrels by heads.

It is one of the largest in the history of the field.

Add Two High Gravity Oil Producers in Webb County

San Antonio, Texas.—Webb County's high gravity oil field was given a boost by two more producers during the week. The largest was South Texas Oil Company's Laurel (State) 2, Block 10, Section 270, which showed between 750 and 1000 barrels initial from 2270 feet when brought in. It was choked down to 140 barrels. The other well was Montex Oil Company's B. Rosenburg 1, Section 271, Block 5, which is flowing 125 barrels from 2239 feet.

South Texas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BEE COUNTY—		
Dirks Bros., Fee 1, Sec. 3, Tuleta..	350	4298
B. Mauldin, J. L. Mauldin 1, Kerr sur .	240	3880
BEXAR COUNTY—		
Eckert & Son, L. Brehm 3, Boquar sur .	14	641
L. Brehm 4, Boquar sur	11	640
F. E. Kistler, Cover 1, Gotaris sur..	*	790
DUVAL COUNTY—		
Byrd Oil Corp., P. T. Wright 3, sec 101	288	2303
Duggan & Smith, Sutherland 2, sur 511	*	2809
Mag. Pet. Co., J. T. Johnson 5, sec 44	¶30	2345
STARR COUNTY—		
Tarver & Nance, Kelsey-Bass 7, blk 7	190	564
WEBB COUNTY—		
Hamill & Hamill, S. Lloyd 1, sec 23, blk 15	*	2361
Montex Oil Co., B. Rosenburg 1, blk 5, sur 271	125	2239
South Texas Oil Co., Laurel 2, blk 10, sec 270	725	2270
ZAPATA COUNTY—		
Texas Co., Jennings 15, Cerrito Blanco sur	75	1196

Wildcat Drilling Report

(Wells shut down not included)

ARANSAS COUNTY—F. E. Kistler, Trustee's McCampbell 1, lot 1, blk 58, McCampbell Ranch, sp.

BANDERA COUNTY—E. A. Parkford et al's Duke 1, sec 7, GH&SA sur, build road, to spud after first of year.

BASTROP COUNTY — American Liberty Oil Co.'s Davis 1, G. W. Stovall sur, to move on. Bastrop Oil Co.'s (formerly Properties Trading Co.), Frietag 1, P. Conley sur, sand 2188 ft, show oil, testing. J. E. Emanuel's H. Klemm 1, R. S. Teal sur, near McDade, ru and stand. Marts & Beavens' Smith 1, J. Burleson sur, dr 1975 ft, chalk. Nelson Pruitt's C. Lentz 1, J. B. Lentz sur, lcn. P. H. Wilson's R. M. Randle 1, Bernard Bymer sur, dr 2485 ft, hard shale.

BEE COUNTY — Earl Calloway's Cox 1, Uranga Grant, Tuleta, to make lcn. CR&M & O'Neill's Stoltfus 1, Ragley sub of Uranga Grant, 1000 ft ne Tuleta, sp. Grisham et al's A. J. Hill 1, sec 11, W. G. Ragley sub, dr 3000 ft. Gulf Coast Oil Co.'s Hicks-Hall 5, blk 2, Uranga Grant, Normanna, swabbing little oil, sand 3616-21 ft, td 3622 ft. C. F. Nichols et al's J. P. Harris 3 (4), sec 13, Uranga Grant, Tuleta, dr. Nichols & Bruner's Hedelfels 1, John Ryan sur, 3½ mi se Beeville, test dry 2636 ft, now dr ahead. Tabor, O'Neill & Howeth's J. P. Harris 1, blk 13, sec 13, top sand 4319 ft, ream to test (Yegua horizon). Wallace & Bowles' Harris 1, blk 12, sec 13, Uranga sur, Tuleta, top sand 4109 ft, td 4120 ft, dr out plugs.

BEXAR COUNTY—Wm. V. Ballard et al's S. A. Land & Dev. Co. 1-A, I. Perez sur, fsh 970 ft. Eckert & Son's L. Brehm 4, No. 58 Boquar sur, Eckert, sp. Gatlin Oil Co.'s I. A. Beck 15, J. Montez sur, Eckert, sp. Robt. C. Hill & Scruggs' F. Schell 1, sec 234, Perretaux sur, td 836 ft, 6¾ inch cas set 822 ft, test. R. V. Hill's M. & A. Boeck 1, J. F. Shepherd sur No. 314, 7 ft sand show oil, td 399.4 ft, bridge over, shoot out with dynamite. Johnson Bros.' Elsie Janszen 1, J. Montez sur, Eckert, completing 815 ft. E. M. Jordan et al's V. A. Petty Estate 1, I. Perez sur, dr, depth not reported. M. E. Trussell's R. T. Pruitt 1, Co block 4299, sand 409-19 ft, show oil, bridged over, dr deeper. H. G. Venable's F. Dullnig 2, Eckert, td 1500 ft, plug to 1100 ft, casing set 1060 ft, completing.

CALDWELL COUNTY—O. N. Beer's Lockhart State Bank 1, John Niel sur, 8 mi n Luling, lcn. Slam Bang Co.'s (J. M. Dickson) W. T. Mooney 1, S. Seal sur, cas set 2165 ft, top chalk 2240 ft, td 2265 ft, try to complete. E. D. Herne's Jeffrey 1, James George sur, set sur cas, re-dr. E. L. Hope & Joe Cole's M. August 1, A. Floyd sur, prep to sp. J. W. Kemp's Geo. Vickery 1, Squire Damon sur, td 2000 ft, plug 1750 ft, woc. Jimmie Lanning's Barber 1, S. Damon sur, dr 2300 ft. Webster O&G Co.'s (D. V. Smith), McMahon 1, James Pinchback sur, dr 1016 ft.

DUVAL COUNTY—Byrd Oil Corp.'s P. T. Wright 4, sur 101, move on. L. W. Capps et al's Duval Ranch Co. 3-A, sec 574, Sarnosa, dr 1900 ft; Duval Ranch 4-A, sec 574, lcn; Duval Ranch 5-A, sec 574, lcn; Duval Ranch 6-A, sec 574, lcn; Duval Ranch 7-A, sec 574, lcn; Duval Ranch 4, sec 576, BS&F sur, Sarnosa, lcn; W. R. Peters 1, sec 178, sp, last report; J. E. Williams 1, sec 7, blk 1, ACH&B sur, lcn; W. T. Daniels' J. F. Smith 1, sec 46, move on. Hamill & Hamill's C. W. Hahl 5, sec 42, move on;C. W. Hahl 6, sec 42, lcn; C. W. Hahl 7, sec 42, lcn; C. W. Hahl 8, sec 42, lcn. Highland Oil Co.'s A. Lundvall 4, sec 42, sp. John Hornbeck's Duval Ranch Co. 1, sec 281, 3 mi sw S. R. & C. pool, move on. Humble O&R Co.'s P. E. White 9, sec 58, lcn; C. W. Hahl 1, sec 74, move on; C. W. Hahl 2, sec 74, lcn; C. W. Hahl 3, sec 74, lcn. Magnolia Pet. Co.'s J. T. Johnson 6, sec 44, to move on; J. T. Johnson 7, lcn; Hahl-Riley 1, sec 45, top sand abt 2290 ft, testing. Payne & Vernon's A. Rpach 1, blk 7, sur 457, prep to sp. L. F. Russ's C. W. Hahl 2-B, sec 45, dr 1900 ft. S. R. & C. Oil Corp.'s Duval Ranch 1, sur 192, lcn. San Diego Oil Co.'s Riley 4, sec 46, lcn; Riley 5, sec 46, lcn; L. Bennett 2, sec 44, top sand 2298 ft, set cas, woc. Sarnosa Oil Co.'s A. Weil 3, sec 130, Sarnosa, sand series 2374-21 ft, flow abt 50 bbls, pull tubing, prep to swab; A. Weil 4, sec 130, lcn cleared; A. Weil 5, sec 130, lcn; A. Weil 7, sec 130, lcn; A. Weil 8, sec 130, lcn; A. Weil 9, sec 130, lcn. C. P. Scott's J. W. Kidd 1, sec 56, sp. Seacord & Putnam's Hahl 1, sec 42, sp; Fee not announced, between North & Main Gov't Wells field, move in derrick. Southwest Drlg. Co.'s R. Wendt 4, sec 43, move in; R. Wendt 7, sec 43, lcn. Stanley Smith's Pena 1, sec 79, 7 mi e Gov't Wells, lcn. Sun Oil Co.'s Duval Ranch 1, sec 78, DI&A sur, td 2386 ft, plugging to 2165 ft to test; Cano (Cuellar) 2, sur 576, dk. The Texas Co.'s H. Wendt 2, sec 42, lcn; C. W. Freer 1, sec 42, move in; W. C. Riggs 3, sec 46, move in. Whisenant-Trenchard & French Oil Corp.'s C. W. Hahl 5, sec 42, Rosita townsite, ru.

FRIO COUNTY — Amerada Pet. Corp.'s Halff & Oppenheimer 1, W. F. Halsel sur, 12 mi sw Pearsall, td 5006 ft, sd to cement 12¼ inch cas at 1072 ft.

GILLESPIE COUNTY — Rod LaGray's Stephens 1, AB&M sur No. 969, dr abt 100 ft.

GOLIAD COUNTY—Gulf Prod. Co.'s Joe O'Conner 3, lcn. Sam Vandweweiss 1, Vicente Ramos sur, ru.

GONZALES COUNTY—A. King's Ramzinski 1, Gonzales sur, move in.

GUADALUPE COUNTY—B. E. Brock et al's Ogletree 1, Robt. Smith sur, td 1805 ft, bailed a little oil. W. A. Scrutchin's S. J. Lowman 1, sec 1, blk 1, S. Barnes sur, ru. J. T. Stover et al's P. A. Hoffman 1, J. G. King sur, re-dr 2109 ft. Suttle et al's Halm 2, Jose Kent sur, dr 1800 ft, Buda, showing some gas. Tong & Altgelt's H. Rahe 1, Mose Baker sur, top Edwards 990 ft, no showing. Walton et al's Dan Darling 1, Ben Fuqua sur, set sur cas, re-dr. A. W. Wormser's Harris 1, DeWitt sur, dk.

JIM HOGG COUNTY—H. C. Cate's Leyendecker 1, blk 10, sec 143, dr 900 ft. Clark & Cowden's W. Allen 1, sec 49, dr 3015 ft. Cole Pet. Co.'s Allen 1, sec 13, sp, last rept.

JIM WELLS COUNTY — Humble O&R Co.'s Fuhrman 1, Phillips Sacks sur, ru. F. A. Lain's Vernon Porter 1, tract 25, show gas 3302 ft.

KARNES COUNTY—H. J. Porter et al's Mrs. Ingram 1, Carlos Martinez sur, test dry 3143 ft, dr deeper. A. E. Edmiston's G. W. Cross 1, M. N. Reed sur, move in rig. Tippett & Mull's Smith 1, Francis Hoskins sur, prep to spud.

KERR COUNTY — Eastland Oil Co.'s J. Love 1-C, sec 1595, CCSD&RGNG sur, dr 1375 ft. Van Duyn & Moore's R. W. Nowlin 1, No. 99, J. E. Bettner sur, dr 375 ft.

LEE COUNTY—Paton Bros. 2, David Hudson sur, 2 mi se Tanglewood, prep to skid dk.

LIVE OAK COUNTY—Live Oak Pet. Co.'s Jim Harper 1, J. Pointavent sur, dr 1720 ft. M. W. R. Oil Co.'s W. C. Ohlendorf 1, blk 25, SGI&336 sur. C. J. Webster O&G Co.'s O. F. Akers 1, T. Henry sur, move on heavier rig.

McMULLEN COUNTY—Capps & Baker's Hagist 1, sec 6, J. W. Osborne sur, move on. Jacob, Buzzini & Pickett's Jacob 8-A, W. H. Jacob sur No. 8, sand 1176 ft, show little oil, now dr abt 1200 ft; Jacob 10-A, W. H. Jacob sur No. 8, set cas 950 ft, woc. Longhorn Oil Co., Trustee's Lark 2, E. W. B. Scrugham sur, lcn. V. G. Schimmel et al's W. E. Wulf 1, sec 65, Two Rivers sur, dr 1400 ft.

NUECES COUNTY — Capps & Smith's Hutchins 1, Geo. Frank sur No. 416, dr 2000 ft. Gibson Oil Co.'s R. Morgan 1, BS&F sur No. 405, dr 4465 ft. Gulf Port Oil Co.'s Frank Bliss 3, sec 406, J. W. Stevens sur, lcn; Isencee 1, C. Land sur, dk; Isencee 2, Chas. Land sur No. 404, dr 2250 ft. Houston Oil Co.'s Walton 1, Rge. 6, sec 9, td 5003 ft, set cas 4000 ft after plugging back, woc. Miller et al's Harney 1, Georgia Farias sur, move in tools. Geo. Noble et al's Home Land Syndicate 1, blk 18, sec 12, lcn. Saxet Gas Co.'s J. Dunn 9, E. Villereal sur, sand 4070-81 ft, test 8 fourbles oil, set cas, woc. Titus & Calloway's Perkins & Legasse 1, H. B. Shepherd sur, blk 26, sand 4557 ft, test 5 fourbles oil, set cas, woc; Perkins & Legasse 2, blk 25, H. B. Shepherd sur, dr 4486 ft; Perkins & Legasse 3, blk 25, H. B. Shepherd sur, ru; R. Morgan 1, sur No. 405, dk; K. Hutchins 1, H. B. Shepherd sur, blk 30, fsh 4143 ft.

REFUGIO COUNTY — Gulf Prod. Co.'s O'Conner 2, n part of county, gasser 5704 ft, ru to deepen. Humble O&R Co.'s O'Conner 4, across rr from No. 3, move in dk.

STARR COUNTY—Adams and Modest's B. W. Wood 1, Por. 84, sp. Austin & Reynold's Kelsey Bass 1, sec 4, Por. 75-76-77, ru. B. & B. Oil Co.'s Kelsey Bass 1, Por. 87, dr 3000 ft. Bryan & Tharp's A. Guerra 1, B 6, San Jose sur, lcn. D. H. Carpenter & Doyno's Salinas 1, Por. 38-39-40, Share 85, dr 2100 ft. W. P. Chancellor's A. Guerra 1, No. 5, San Jose sur, dr 550 ft. Chancellos & Buchanan's Fernandez 1, Por. 99, lcn. W. T. Gillman & Travelers Oil Co.'s C. Ramos 1, sec 150, sp and sd. Dr. Goodwin & Yantis's Kelsey Bass 1, sec 2, Por. 86, tract 56, td 1810 ft, move on larger rig; Seabury et al, Por. 75, sec 3, top gas sand 685 ft, dr. Great Plains Oil Co.'s Sanchez 1, sur 344, ru. J. E. Harper & Co.'s E. Salinas 1, Share 16, Por. 75, sd 100 ft. Jeffries-Lambert Drlg. Co.'s Starr County Cattle Co. 1, blk 34, Por. 89, dr 1500 ft. Boyd Jones' Garza 1, share 3, Por. 75, prep to sp. Jones & Jeffries' H. Garza 1, share 26, lcn. Keck & Keane's Kelsey Bass 10A, sec 6, Por. 75, 76, 77, move on. Los Olmos O&G Co.'s Kelsey Bass 33, sec 7, Por. 75-76-77, sp; Kelsey Bass 34, sec 7, Por. 75-76-77, dr 300 ft; Kelsey Bass 35, sec 7, Por. 75-76-77, dr 385 ft; Kelsey Bass 36 to 46, inclusive, sec 7, Por. 75-76-77, lcn. A. C. McGahey's Fernandez Bros. 1, Por. 99, lcn. Dr. R. McCormick's Kelsey Bass 1, Sh 7, Por. 75-76-77, lcn. D. A. Miller et al's Madrigal 1, share 5, Por. 67-72, dr 200 ft. R. A. Mitchell's Kelsey Bass 1, sec 8, Por. 75-76-77, dr 250 ft. J. P. Moore & C. B. Van Matre's Seabury et al 1, share 5, Por. 75, sd 300 ft. L. G. Mundy's M. R. G. Salinas 1, share 38C, blk 12, Por. 80, sd 1460 ft; Seabury 1, share 5, Por. 75, ru. John A. Pope's H. Gonzales 1, sec 339, HE&WT sur, sp. J. W. Seward 1, F. Dawson 1, blk 6, Share 3B, Por. 70, lcn. C. L. Sinclair et al, Kelsey Bass 2, share 5, Por. 75-76-77, sand 434 ft, show oil. Sioux Oil Co.'s Doyno 1, share 77-A, Por. 81, blk 4, dr 100 ft. E. H. Stickney's H. Gonzales 1, sec 1, sec 339, HE&WT sur, lcn. Warner & Doyno's Seabury et al 1, share 5, Por. 75, re-cement cas 389 ft. Wells-Flemminger-Miller's Lensgraf 1, sec 7, Por. 75-76-77, dr 387 ft.

SAN PATRICIO COUNTY — Saxet Gas Co.'s Rachel 19, White Pt., dk.

TRAVIS COUNTY—E. A. Field's Bloor 1, dr 1100 ft. Franklin et al's Reimers 1, sec 35,

dr 200 ft. Fritz Fuch's Wm. Smith 1, L. Kimbro sur, lcn.

VICTORIA COUNTY — Cullen & West's Keeran 2, M. De Leon sur, dk. Gulf Production Co. et al's Keeran 3, M. De Leon sur, dr 5025 ft. Houston Oil Co.'s W. T. Beck 1, lot D, I Ry No. 26 sur, dr 4650 ft. Quintana Pet. Co.'s Welder 1, near Nursery, moving in dk. Slick-Seeligson Corp.'s McFadden 2, J. Varin sur, td 6770 ft, plug to 5180 ft to complete in gas sand. Texas Co.'s A. M. McFadden 5, McFadden sur, dr 2000 ft. Union Oil Co.'s C. N. Keeran 2, M. de Leon sur, test sw and gas 5334 ft, dr deeper.

WEBB COUNTY — Foster Barnsley's F. Webster 2, sec 684, td 2588 ft, ru to deepen. Dyck Oil Co.'s Garcia & Villareal 1, G&C sur, sec 1100, dk. J. E. Edward's M. D. Slator 1, blk 72, Slator sub, J. V. Borrego grant, dr 800 ft. O. W. Killam's W. Breckenridge 1, sec 77, blk 9-11, J. A. Flippen sur, sand 1773-83 ft, show oil, cas set, dr in. Sal-Mar Oil Co.'s Vela 1, sec 1011, blk 16, prep to sp. South Texas Oil Co.'s Laurel 3, sec 270, blk 10, dr 800 ft.

ZAPATA COUNTY — C. B. Bunte et al's Mrs. A. Gutierrez 1, tract 2, blk 5, B. F. Nixon sur, Por. 10, dr 1700 ft. Hamilton, Brower & Crew's Slator 1, blk 1, J. V. Borrego grant, dr 1150 ft. Newton et al's Flores 1, sur 249, dr 900 ft. F. J. Ossenbeck's Ramirez 1, Por. 18, lcn. Phelps, Tagel & Leyendecker's Martinez 1, blk 16, S. T. Phelps sub, Villa Grant, dr abt 900 ft. F. J. Searight's F. Mounz 1, blks 81-82, Por. 81, sd 281 ft to lay water line. Texas Co.'s Jennings 16, Cerrito Blanco sur, sp.

ZAVALLA COUNTY — Adair & Daniels' Gates 1, sur 13, dr 3300 ft.

Court Grants Conroe Operator Writ of Error

Austin, Texas.—A writ of error was granted Alpha Petroleum Company November 28 by the supreme court to prevent the Texas Railroad Commission from forcing application of proration rulings to the company's wells in Conroe oil field.

Alpha Petroleum Company originally obtained an injunction against the commission in the district court, but the court of civil appeals in Beaumont reversed the decision and ordered the injunction dissolved. The company then took the fight to the supreme court with application for a writ of error.

Shell Employes Begin Moving Into Houston

Houston.—As a result of general changes in the administration of the Shell Petroleum Corporation's activities in the Southwest, employes of the Dallas and St. Louis offices of the corporation begin arriving in Houston December 3 to occupy new offices in the Post Dispatch Building, which will be renamed the "Shell" building.

Decentralized activities in Arkansas, Louisiana, New Mexico and Texas, except the Panhandle, will be under jurisdiction of T. E. Swigart, vice president transferred to Houston. In addition to officials, the move involves transfer of 145 employes to the Houston office from Dallas and of 25 from St. Louis to Houston.

GULF COASTAL FIELDS

Pledger's Value Undetermined; Ariola Continues to Baffle; Conroe Hits 64,136 Barrels Before Proration.

WM. V. GROSS, *Staff Representative, Houston, Texas*

Danciger Washing in Cedar Break Wildcat

Houston.—Whether Cedar Break, sometimes referred to as Pledger, was to become an oil field remained unknown late Friday as the well continued throughout the night blowing a large volume of gas and wash water, with both carrying a suggestion of high gravity oil coloring.

The general opinion seems to be that there is an oil field in the immediate vicinity, but that W. S. Hunt 1, the well Danciger Oil & Refining Company is trying to complete, will be a gas well at 6782 feet and that additional drilling will be necessary before commercial oil is found.

W. S. Hunt 1, after one unsuccessful attempt at setting screen, was successful in landing 24 feet of screen late in the week. Gas pressure was too much to be recorded by the 2000-pound gauge originally installed, and a heavier gauge installed. Pressure built up amounted to 2525 pounds, and at latest reports the fittings on top of the well were partially frozen.

The Cedar Break prospect is in the heart of a cedar swamp, being located in a 3350-acre block in the W. C. Coirson Survey of Brazoria County.

Polk County Test to Try Upper Cockfield for Oil

Houston.—Latest reports are that Dick Schwab will plug the bottom of the hole in Davis Holmes 1, wildcat well in the Augustine Viesca Survey, eight miles south of Livingston, Polk County, and try to make a producer in the Cockfield after having encountered salt water at 4438 feet.

Davis Holmes 1 topped the Cockfield at 4304 feet, or about 107 feet lower than the same formation was topped in Carlton Davis 1, located 1050 feet east northeast, as completed as a gas well making a small amount of high gravity oil.

A drill stem test on Davis Holmes 1 opened 8½ minutes showed five fourbles of mud, four of live oil and 29 fourbles of salt water, and no gas.

Another Failure Recorded In Search for Ariola Oil

Houston.—Houston Oil Company and Republic Production Company, operators who have been attempting to devote commercial production around Ariola salt dome prospect in Hardin County, suffered another blow this week when they were forced to abandon Ariola Fee 2 at 5980 feet after recovering six fourbles of drill stem. Abandonment depth was four feet below that at which a sand showing salt water was cored.

Ariola Fee 2 was located about 2600 feet north northwest of the discovery well of Ariola dome and about 660 feet east of Gulf Production Company's Kirby Lumber Company 1, another wildcat in the Ariola Survey which at latest reports was drilling in shale at 6500 feet.

Houston and Republic have two other wildcats drilling at Ariola: Ariola Fee Y-1, drilling in sand and lime at 4717 feet, and Ariola Fee Z-1, drilling at 4066 feet after having plugged back to 3310 feet.

Sun Rigging Up to Test Block in Austin County

Houston.—Sun Oil Company is rigging up on a wildcat to test a large block of acreage in Austin County which has been subjected to considerable geological and geophysical work. The test, which will be drilled with a rotary rig transferred from East Texas field, is on the R. W. Theuman 125-acre lease, being 990 feet from the northeast line and 924 feet from the northwest line of the lease, which is in the Juan de Leon Survey.

The acreage to be tested is two miles west of Kenney and one mile north of Cat Springs.

Fohs to Drill Wildcat West of Conroe Field

Houston.—Julius Fohs, prominent geologist who shared discovery honors of Mexia and whose name has been associated with the colorful career of the late Colonel A. E. Humphreys, has taken out a permit to operate in Texas as the Fohs Oil Company, a Delaware corporation, and will start activities in the state by drilling a wildcat in Montgomery County west of Conroe field on a location which has not been announced. Atlantic Oil Producing Company has a 10 per cent interest in the well and in the acreage involved, and Continental Oil Company likewise has an interest in the project.

Gueydan Wildcat Tests Mud, Salt Water and Oil Odor

Houston.—A drill stem test of Pure Oil Company's Alliance Trust Company 3, wildcat well on the Gueydan prospect, Vermilion Parish, Louisiana, showed salt water, mud and a faint odor of oil at 4191 late this week. Drilling has been resumed.

Pure's Mulvey Irrigation Company 2, a second active test at Gueydan, is drilling below 1110 feet after having set 13⅜-inch casing at 1088 feet.

Thirteen Rigs Running At Barbers Hill Field

Houston.—Along with an 800-barrel completion, the first recorded in two months, Barbers Hill field announced four new locations and 13 active drilling tests for the week ending December 2, enough to assure its being listed among the more active fields of the Gulf Coast for the next three months.

The completion was Texas Gulf Producing Company's Ilfrey 4, an east flank well completed in sand at 4034 feet.

Houston Geologists Inspect Outcrop of Jackson Section

Houston.—The Houston Geological Society was scheduled to make a field trip Saturday, December 3, to the vicinity of Bryan, Texas, for studying the surface outcrop of Jackson section, which is of particular interest at present because of the important development along the Pettus-Raccoon Bend-Conroe trend.

Conroe to Continue Most Active Field in Gulf Coast

Houston.—Although allowable production for Conroe field, Montgomery County, was placed at 25,000 barrels per day effective December 1, it is evident the figure will have to be increased at the expiration of the order's effectiveness, December 31, or the per well and acreage allowable will have to be lowered. In either event, the area is more than a psychological threat to market stability.

Nine oil wells completed there during the week had an aggregate initial of 22,266 barrels, or 2474 barrels per well, all initial gauges being taken on choke. W. F. Knode, Texas Railroad Commission engineer, estimated November 23 the 57 wells in the field at that date had a potential of 125,000 barrels, a figure just about in keeping with the initials of this week's completions.

A sample of what may be expected of Conroe is vividly pointed out on production reports from the area for the few days antedating effectiveness of the commission's order, curbing the field to 25,000 barrels per day. The following tabulation shows what happened at Conroe when the smoothly functioning legal department of an anti-proration organization obtained a writ of error against the commission and another a restraining order:

Date	Number of Wells	Production in Barrels
November 25	59	18,551
November 26	60	36,458
November 28	61	47,561
November 29	63	51,136
November 30	65	51,325
December 1	66	64,136

The above figures represent for each date the period ending at 7 a.m., and a glance at the December 1 figure, compared with that for November 30, paints the tendency to "make hay while the sun shines," or before the commission's order goes into effect.

As of December 2, Conroe field proven acreage measured 22,000 feet from east to west and 27,000 feet from north to south, an area roughly of 20 square miles within which a dry hole has not been drilled. Limits of production for the field have not been defined on the north, northeast, east, southeast, south, southwest, or west. It is not unlikely that the area may eventually embrace twice the number of square miles it does today.

Four dry holes pretty clearly define the northwestern limits of the field, that is, if speculators are willing to arbitrarily eliminate possibilities of anything in the nature of commercially productive horizons below 5382 feet.

There is enough activity already scheduled at Conroe to warrant statement that it will continue throughout the early part of 1933 at least to be the most active spot in the Gulf Coast. On its South Texas Development Company A-lease alone, Humble Oil & Refining Company is reported to be contemplating the drilling of 50 wells minimum. Projected drilling campaigns of other operators are commensurate with acreage they hold, and as long as the field's initials are of the character they have established since the discovery well was brought in, every location allowed by the commission will be drilled. A survey of field operations in Conroe as of December 2 revealed the following:

Wells on sand	12
Drilling wells	16
Rigs and derricks	27
Locations	21
Total operations	76

Rigs from the above wells listed as standing cemented on the sand will be transferred to derricks within a week or two, as soon as the wells are brought in,

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●

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thus assuring a steady rate of development for the field.

Late completions of the week at Conroe not listed in the table of completions on the following page include Humble Oil & Refining Company's Maurice Hirsch 1, completed at 5148 feet for an initial production of 2880 barrels through a half-inch choke, and the same company's McDonald 1, completed at 5160 feet for an initial production of 2472 barrels through a half inch choke.

Texas Gulf Coast Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Texas-Gulf Producing Co., Ilfrey 4	800	4034
CONROE—		
Humble Oil & Ref. Co., Madeley 3	2088	5149
So. Tex. Dev. Co. 22	1800	5153
So. Tex. Dev. Co. 23	1944	5181
So. Tex. Dev. Co. 26	2376	5169
Navarro Oil Co., Rhoden 1	450	5088
James Papadakis, McDonald 1	6000	5120
A. Plumber et al, So. Tex. Dev. Co. 1	*	5190
R. B. Violette & E. D. Griffin, Receivers, Mr. F. Hooper 1	2256	5128
DAMON MOUND—		
Sinclair-Prairie Oil & Gas Co., Norton 3, (wo)	76	3651
DANBURY—		
Shell Pet. Corp., Blakeley Winston 5	*	5075
HARRIS COUNTY—		
Indian Hill Oil Co., W. L. Schweinle 1 (Hufsmith)	*	6143
HULL—		
Republic Prod. Co., Dolbear 147	240	2221
HUMBLE—		
E. M. Wilson Oil Co., Whelan & Pickens 1, Blk 20	*	1889
MARKHAM—		
United North & South Dev. Co., McDonald 1, (wo)	*	3529
MYKAWA—		
Crown Central & Framar, Minnetex 3	96	4870
RABB RIDGE—		
Humble Oil & Ref. Co., & Gulf Prod. Co., Mary Gubbels 1	1320	5325
J. H. P. Davis 3	*	6829

Wildcat Drilling Report

(Wells shut down not included)

AUSTIN COUNTY—Bunte, Jr., Dittert 1, ru on lcn 200 ft sw and 300 ft nw from e cor Henry Vornkahl 16-ac tract in M. N. Allen sur, 4 mi s Bellville. Great Southern Drilling Co., F. Schovajsa 1, 329 ft n 78 deg e of n cor B. Dougherty tract in S. F. Austin 4-LGS sur, td 2876 ft, rebldg dk. Sun Oil Co., R. W. Theuman 1, move in rotary from E. Texas for well on large blk in Juan de Leon sur, 2 mi w of Kenney.

BRAZORIA COUNTY — Danciger Oil & Ref. Co.'s W. S. Hunt 1, 4 mi e Pledger, W. C. Corrson sur, set 7⅝ cas at 6753 ft, ran screen to test sand at 6758-6782 ft, began washing, made small amount oil with considerable gas, killed to put on new Christmas tree, washed again, flowed very small stream wash water with gas and trace of oil, pulled drill stem, screen apparently blew up into casing; operators plan either to pull screen and reset, or to set full string liner with screen on bottom, new valve installed carries pressure of 2525 lbs. and is partially frozen. Gulf Prod. Co.'s Lockwood 1, Wiley Martin sur, midway between Damon Mound and West Columbia, dr 5380 ft sn rk. Gulf Prod. Co.'s American Nat'l Ins. Co. 1, Sandy Point prospect, E. R. Bradley sur, dr 4339 ft sh and li. A. H. Parsons et al's J. D. Hughes 1, Halls Bayou prospect, A. L. D. Lewis sur, dr 4151 ft sn. Shell Pet. Corp.'s Blakely-Winston 5, Danbury dome, abn in salt at 5075 ft. W. D. Southerland et al's C. W. Chapman 1, Sandy Point prospect, Andrew Robinson sur, fsh at 5787 ft in hard sand. Tri-Fin Oil Co.'s Moers 1, 6 mi sw Alvin, F. Moore sur, dr 2787 ft hd shale.

BURLESON COUNTY—Poor Boy Oil Co.'s Polansky 1, 6 mi w Lyons, M. B. Lawrence sur, dr 2320 ft shale. Sanson O&G Co.'s Duckworth & Gilley 3, P. Singleton sur, dr 2655 ft water sand.

COLORADO COUNTY — Neuhaus et al's McBarnett 1, Q. K. Winn sur, dr 5155 ft sandy shale.

FORT BEND COUNTY — Reisinger's Joe Sitta 1, D. J. Bell sur, Long Point, dr 1099 ft shale. Magnolia Pet. Co.'s Hampil 1, n Rabb Ridge, H. Chrisman sur, dr 6190 ft shale. Naylor & De Costa, Naylor 1, 1½ mi n of Thompson Station, stg 7014 ft.

GALVESTON COUNTY — Humble O&R Co.'s Elias V. Rosenkranz 1, 4 mi sw Hitchcock, Sarah White sur, td 7119 ft shale, bldg tank.

HARDIN COUNTY — Republic Prod. Co.-Houston Oil Co.'s Ben Andrews Fee 1, 6 mi e Ariola dome, S. K. Vanmeter sur, dr 6490 ft packed sand. S. Robichaux's McShane 1, Votaw prospect, 1½ mi ne Votaw, Benj. H. Hawkins sur, dr 2980 ft. Gulf Prod. Co.'s Kirby 1-A, Ariola dome, ½ mi nw discovery well, dr 6065 ft. Houston Oil-Republic Prod. Co.'s Ariola Fee Y-1, Ariola dome, dr 4716 sn and lime; Z-1, dr 4059 ft, pb from 4220 ft. Republic-Houston Oil's Ariola Fee 2, td 5980 ft sand, recovered 6 fourbles of dr stem and then abandoned. Joe E. Proctor's J. R. Bevil 1, 1½ mi w Sour Lake dome, Wm. W. Young sur, dr 300 ft, pb from 2685 ft.

HARRIS COUNTY — T. V. Buccholv & Son's Miller 1, Arthur McCormick sur, near Deer Park, sd 1172 ft. Indian Hill Oil Co.'s W. L. Schweinle 1, near Huffsmith, Wm. White sur, abn in salt at 6143 ft. Dr. Lilly et al's Wilson Hunt 1, W. Ritchie sur, dr 1060 ft sand. Cherry & Pritchard, Griffith 1, sd at 1050 ft.

JASPER COUNTY—Gulf Prod. Co.'s Miller Vidor 1, Sarah Gray sur, e bank Neches river, dr 6673 ft sand. Houston Oil Co.'s Richardson Fee 1, 3 mi e Evadale, Benj. Richardson sur, dr 6130 ft.

JEFFERSON COUNTY—Coast O&G Co.'s J. O. B. Young 1, 3 mi ne Pt. Arthur, Jos. Grigsby sur, sd 3415 ft shale. Jack Schultz's O. M. Todd 2, Cheek prospect, W. Carr sur, dr 6500 ft hd li.

LIBERTY COUNTY—Leon Brisley, Tr., J. M. Neal 1, 3 mi s Davis Hill, E. Tanner sur, dr 2721 ft.

MATAGORDA COUNTY — Cockburn Oil Corp.'s Hawkins 5, Sheppards Mott, dr 2965 ft. United North & South Dev. Co.'s Stoddard 1, wo, Buckeye townsite, total depth 7926 ft, making 1500 bbls 25 per cent salt water, preparing to work over. Humble O&R Co.'s Pierce Est. 1, ne corner of county, Isaac Foster sur, dr 3057 ft shale. Rugeley et al's Cleveland 1, 1 mi w Bay City, E. Hall sur, stg 1500 ft.

MONTGOMERY COUNTY—C. J. Daniel's Flowers 1, W. Barker sur, dr 482 ft. A. H. Parson's Drought 2, J. Kronkite sur, dr 2342 ft shale.

NEWTON COUNTY—L. A. James, Price & Bevil 1, s½ of County, 4 mi ne Bleakwood, sec N. B. Lewis sur, dr st shale at 2011 ft.

ORANGE COUNTY—Houston Oil Co.'s E. Hurst 1, E. Hurst sur No. 15, dr 4228 ft shale. E. L. Smith Oil Co.'s Miller Vidor 1, J. W. Swisher No. 3 sur, dr 5471 ft.

POLK COUNTY—Joseph L. Anderson's E. I. Duke 1, Ace dome area, Peter J. Menard sur, dr 3741 ft shale. Ace Oil Co.'s Martha E. Roberts 1, Ace dome area, Joaquin F. de Rumayor sur, dr 3818 ft shale. Kach & Stephenson's R. H. Root 1, Lawrence Castillian sur, sd 2536 ft shale. Dick Schwab's Davis-Holmes 1, 8 mi s Livingston, A. Viesca sur, dst 4360-4438 ft, 8½ minutes, showed 5 fourbles mud, 4 live oil, 29 salt water, no gas.

SAN JACINTO COUNTY — Darby-Jones-McBee Drlg. Co.'s J. R. Bennett 1, nw Cold Springs, dr 1503 ft. Weaver et al's Delta Land & Timber Co. 1, Jas. W. Robertson sur, dr 410 ft.

TRINITY COUNTY—South Gulf Oil Co., Trinity Lbr. Co. 1, ru.

TYLER COUNTY—Republic-Houston Oil's Sterne Fee 1, 4 mi ne Spurger, Adolph Sterne sur, dr 5250 ft, had sw sn 5030-84 ft.

WALLER COUNTY—Birdwell et al's Rob-

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ertson 1, Jno. Baker sur, ru. Jim Oil Co.'s Joe W. Harris 1, near Prairie View, Justo Liendo sur, fsh for dr stem at 4857 ft in sand.

WALKER COUNTY—Howard & R. Dooley, Smithers 2, sd in sndy shale at 1876 ft.

WASHINGTON COUNTY—M. O. T. Oil Co., Giddings 1, S. Young sur, 698-ac tract, td 65 ft, ru.

WHARTON COUNTY — Cullen & West's Hawes 1, 1 mi ne Hungerford, dr 4131 ft shale; Hudgins 1, Alexander Jackson sur, dr 3747 ft. Gant & Teas' Laura Hahn 1, 14 mi n El Campo. N. Mancha sur, r to bottom, td 5540 ft shale. Smith & McDaniel's and Shell's Mitchell 1, 2½ mi ne El Campo, H&TC Co. sur No. 8, showed gas and salt water on dr stem test at 5432-5488 ft, dr 5810 ft sandy shale.

Louisiana Gulf Coast Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
IOWA—		
Shell Pet. Corp., Fontenot 1 (Jefferson Davis Parish)	900	6944
PORT BARRE—		
Port Barre Oil Co., Sibille 1 (wo)	*	3572

Wildcat Drilling Report

(Wells shut down not included)

ACADIA PARISH—Olympic Oil Co.'s Luckett 1, Jennings, dr 1738 ft sw. Yount-Lee Oil Co.'s Housierre-Latrielle 11, Jennings, dr 6873 ft shale.

CALCASIEU PARISH—Dr. T. W. Irvine's Mimms 1, Sec. 20-9s-7w, dr 1867 ft. The Texas Co.'s Miller 1, Edgerly, dr 6092 ft shale and sn.

CAMERON PARISH—Union Sulphur Co.'s Pure 2, E. Hackberry, dr 6827 ft shale; Humble 4, dr 5891 ft sndy shale. Yount-Lee Oil Co.'s School Land 11, Hackberry, dr 5706 ft; School Land 12, lcn 200 ft s No. 11.

IBERVILLE PARISH—Shell's Wilbert 6, White Castle, dr 5315 ft sand. Standard of La.'s Gay 3, Choctaw, moving in rig.

JEFF DAVIS PARISH—B. D. Fenley's Lognion 1, 22-10s-4w, sd at 40 ft. Shell's Fontenot 2, Iowa, comp for 900 bbls, oil sand at 6931-6944 ft; Fontenot 3, ru.

LA FOURCHE PARISH—Lechner & Hubbard's Lollain Lbr. Co. 1, 32-18s-22e, spud. The Texas Co.'s LLE-Leesville 6, Leesville, dr 1037 ft.

PLAQUEMINES PARISH—The Texas Co.'s State Garden Island Bay 6, Garden Island Bay dome, trying to kill gas flow, depth 815 ft, prep to go over dr st.

TERREBONNE PARISH—The Texas Co.'s Caillou Island 7, Caillou dome, driving piling for foundation; LLE-Lake Barre 4, Lake Barre dome, dr 2547 ft anhyd; State Lake Barre 7, wo, dr 5619 ft sand; State Lake Barre 17, td 5090 ft, r at 1056 ft.

VERMILION PARISH—Pure Oil Co.'s Alliance Trust Co. 3, Gueydan, oil sn at 4092 ft; Mulvey Irrig. Co. 2, Gueydan, dr 404 ft. Shell's Hebert 1, 10-15s-1e, ru.

VERNON PARISH—Minerals Division of Llano Co.'s Llano del Rio 1, 2 mi sw Leesville, 34-2n-9w, dr 3351 ft shale.

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LOUISIANA FIELDS

Zwolle Will Get Acid Treatment If Pending Experiment Proves Successful. Converse Has Three Tests Showing.

Will Try Acid Treatment On Wells in Zwolle Field

Shreveport, La. — Sabine Production Company of Shreveport has contracted with Chemical Process Corporation of Breckenridge, Texas, to make an experiment with acid treatment of its Pierce 1, Section 10-7-11, Sabine Parish, in the southeast part of the Zwolle marl-chalk rock field. This will mark the first test made of the acid method in either North Louisiana or South Arkansas.

Sabine Production Company's Pierce 1, was completed on November 16, 1930, flowing 600 barrels of oil daily from a break in the chalk, at 2392 feet; elevation is 241.2 feet. Zwolle marl was logged at 2328 feet and Zwolle chalk at 2341 feet. The well is still making an average of 60 barrels daily. At the time of its completion it extended production 1¼ miles southeast.

If the experiment on Pierce 1 is successful Sabine Production Company will immediately make the experiment on Pierce 2 in the same section which never came up to expectations and never exceeded 75 barrels daily though having given promise of 300 to 400 barrels daily when the break in the chalk occurred.

The marl-chalk horizon where production is found at Zwolle ranges from 2075 to 2700 feet. Production comes from breaks and it is believed this type of producing horizon provides excellent possibilities for acid treatment.

H. D. Easton, geologist who made location for the discovery wells at Zwolle, an authority on operating problems in that field, believes Zwolle is ideally suited to successful acid treatment to increase production.

Zwolle has approximately 130 producing wells and a daily average of over 8000 barrels. Approximately 55 wells that were completed as producers in that field have become depleted and have been abandoned.

Laying Eight-Mile Outlet For Sugar Creek Gas

Shreveport, La.—Peoples Gas Company (Belchic and Lasky) are laying eight miles of six-inch screw line to connect with the Sugar Creek gas field in Claiborne Parish, and the company's line serving several north Louisiana towns with gas. The gas will be purchased from United Gas Public Service Company, Standard Oil Company of Louisiana, and Triangle Drilling Company, equal owners of the Sugar Creek gas field which yields gas that runs approximately 1300 gallons of gasoline per million cubic feet. The gas to be run in People's Gas Company's line will be used after it has gone through a gasoline absorption plant established soon after the field was opened. This will be the first outlet of the Sugar Creek gas which is found in oolitic lime of the Glen Rose around the 4300-4400-foot level.

Claiborne Parish Wildcat Plans Going 5000 Feet

Shreveport, La.—A. W. Phillips, Trustee's Knighton 1, Section 31-20-7w, Claiborne Parish, location for which was announced recently, is in the center of a 9600-acre wildcat block and will go to 5000 feet, according to the owner, who with this location now has three wildcat locations in North Louisiana in as many parishes.

Contract calls for the spudding of this test by February 1. This block is six miles south of the Homer oil field, which was uncovered in 1919.

Three Converse Wells Have Showings; Going Deeper

Shreveport, La.—Three tests in the Converse field in Sabine Parish which had shows of oil or gas in the sandy marl of Nacatosh age in which the discovery well of the field, Gibson-Johnson & Higgins' Frost Lumber Company 1, Section 19-9-13 is producing on beam at 1626 feet, have failed to make commercial wells in that horizon and are being deepened.

These tests are: Gibson-Johnson and Higgins' Frost Lumber Company 2, Section 15-9-13, which probably would have made a 25 to 30 barrel pumper at 1526 feet, is now drilling around 1700 feet and probably will go to the 3100 foot level where two previous tests have had good oil shows; Sandfield Oil & Gas Company's Bowman-Hicks 1, NE NE Section 26-9-13, which logged sandy marl of the Nacatosh age from 1707 to 1774 feet and in several places cores showed oil odor but the formation was too tight to produce, is now drilling at 2200 feet; and Sabine Production Company's Whitney Corporation 1, SW SW Section 4-9-13, which is drilling below 1900 feet after logging the sandy marl of Nacatosh age from 1456 to 1551 feet and having several good gas shows. The latter two tests

were originally scheduled for the 3100 foot zone.

Meanwhile Nick Barbee and Associates' Ryals 1, NW NW Section 27-9-13, reached base of Midway at 1542 feet and encountered a good oil show at top of the Nacatosh sandy marl and are setting six-inch casing to test.

While failure of the three tests mentioned to make producers in the shallow zone has somewhat slowed up new development at Converse, one new location was made there during the week.

Zwolle Failures More Than Double Oil Completions

Shreveport, La.—Three small producers and eight dry holes were completed in the Zwolle marl-chalk producing field of Sabine Parish, during the week ending November 30. In the same district two other locations were abandoned and four locations announced.

Besides the four locations in Zwolle and one in Converse there was one other new location in North Louisiana. United Gas Public Service Company and Associates making location for Stevenson et al's 1, NW SE Section 1-19-6w, Claiborne Parish, for another test for the Glen Rose oolitic lime around 4300 feet where a heavily saturated gas is found.

Caddo Parish Gas Well Is Extension for Greenwood

Shreveport, La.—Louanna Oil & Gas Company's Hammack A-1, NE NE Section 5-18-6w, Caddo Parish, two miles northwest of the discovery well of a north offshoot to the Greenwood gas field, was completed last week making 13 million cubic feet of gas at 2767 feet, in what was originally identified as Tokio but which owners say one paleontologist has identified as lower Cretaceous.

Another test, Curry 1, N½ SE Section 32-19-16, half mile north of the new gasser, will be drilled immediately.

North Louisiana Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
Texana Oil Co., Alford 1, 10-18-11..	*	1731
CADDO PARISH—		
Louanna O&G Co., Hammack A-1, 5-18-16	¶13	2767
NATCHITOCHES PARISH—		
Saline Bayou Dev. Co., Bodcau Lbr. Co. 1, 9-12-5w	*	2690
R. A. Keaton, Stephens 1, 25-10-6w	*	1700
Dr. H. S. Gerson et al, Smith Island 1, 11-10-8w	*	1875
OUACHITA PARISH—		
Wilson & Mitchell, W. L. Williams 1, 5-16-1e	*	3480
SABINE PARISH (Zwolle)—		
W. F. Lacey, Cooper 3, 30-8-11...	*	2601
C. H. Tuttle, Byrd 3, 7-7-10	*	2727
Capitol-Crescent Oil Co., Byrd 1, 1-7-11	75	2460
E. F. Neely, Ponder 3, 15-7-11	200	2575
H. H. Stout, Byrd 1, 1-7-11	*	2690
Jno. R. Bunn, Sabine 1, 9-7-13	*	2422
H. C. Maulding, Moores 1, 16-7-13	*	2494
Skidmore Oil Co., G. Martinez 2, 3-7-13	100	2330

New Operations

CALCASIEU PARISH—Wilson-Broach Co., Beaumont, Texas, Strip 9, 33-10s-12w, 450 ft n and 379 ft e sw cor se¼ ne¼ sec. Magnolia Pet. Co., Lake Charles, Bordges et al 10, 8-10s-9w, 1001 ft e and 338 ft n sw cor nw¼ ne¼ sec. Union Sulphur Co., Sulphur, Fee 776, 29-9s-10w, 125.47 ft s and 1490 ft w of cen of sec.

CAMERON PARISH—Yount-Lee Oil Co., Beaumont, Texas, School Sec. No. 12, 16-12s-10w, 1460 ft n and 2330 ft e sw cor sec.

CLAIBORNE PARISH—United Gas Public Service Co., Shreveport, Stevenson-Kilpatrick et al 1, 1-19n-6w, 1870 ft w and 1070 ft se cor sec.

SABINE PARISH—E. F. Neely, Shreveport, Ponder 6, 15-7n-11w, 330 ft e and n sw cor sw¼ nw¼ sec. Crescent Drilling Co., Monroe, Garner 1, 4-7n-11w, 330 ft s and e nw cor nw¼ ne¼ sec. Rogers & Self, Robeline, La., Henderson 2, 31-8n-10w, 330 ft n and 500 ft e from sw cor se¼ se¼ sec. Nowlin & Cherry, Shreveport, W. N. Turner 1, 4-7n-11w, 330 ft w and 109 ft n se cor nw¼ nw¼ sec.

Wildcat Drilling Report

(Wells shut down not included)

BIENVILLE PARISH — Black Lake Dev. Co., Petty Stave Co. 1, nw nw 19-18-6w, sd for repairs 2628 ft. Robt. S. Ross, Beck 1, ne ne 3-18-8w, move in rig.

BOSSIER PARISH — A. W. Phillips, Tr., Oden 1, nw nw 4-18-13, wo 200 ft. Plain Dealing O&G Co., Nattin 1, 14-22-14, bailed dry, show oil, wo., td 2965 ft. Steckol & Breazeale, Nattin 1, sw ne 15-22-14, 6-inch 2998 ft, wosr, td 3028 ft. Steckol & Breazeale, Nattin 2, nw ne 22-22-14, dk.

CADDO PARISH — Bolinger & Walker Thompson 1, 16-22-14, dk. Caddo Prairie Dev. Co., Nicholson 1, ne sw 10-22-15, dr 2250 ft.

CLAIBORNE PARISH—A. W. Phillips, Tr., Knighton 1, ne se 31-20-7w, (5000 ft test), materials. Webster O&G Co., Smith 1, 8-21-7w, sd 1400 ft.

DE SOTO PARISH—M. B. Gill, Hill 1, sw ne 4-10-13, rig. Honeycutt O&G Co., Porter 1, 26-12-13, dr 2720 ft. Mrs. Aleene Ibach, Tr., Rambin Est. 1, nw ne 32-11-11, 10-inch 120 ft. E. T. Oakes, Johnson 1, 30-13-15, core 4420 ft. Geo. L. Pace, Jno. Cale 1, se ne 11-11-11, dk. W. M. Pollock, Cook 1, ne nw 1-13-15, dk. Potter et al, Dowling Bros. 1, 31-14-14, wo cas, td 3068 ft. Walters & Nicholson, Jim Guy 1, 3-11-13, wosr, td 2767 ft. Warren & Craig, Wagner 1, 5-12-14, sd 750 ft. Jack Whitson, Sanders 1, sw sw 19-11-13, elev 285 ft, blew out and bridged, co 1965 ft.

GRANT PARISH — A. W. Phillips, Tr., Cameron 1, se ne 27-7n-3w, rig. Robichaux et al, Bradford 1, 16-9-1e, rig.

LINCOLN PARISH — Benedum & Trees, Dubach Lbr. Co. 1, se ne elev 121 ft, sd for fuel 3940 ft.

NATCHITOCHES PARISH—Gerson et al, Smith 4, 11-10-8w, 10-inch 20 ft, dr 75 ft. J. B. Oil Co., Hankins 1, 67-10-7w, sd 660 ft. Texana Oil Co., Clark-Morse 2, 23-5-6w, 6⅝ cas 3350 ft, tested sw, sd wo 3475 ft.

RAPIDES PARISH—Petroleum Ind., Inc., Lee Lbr. Co. 1, sw nw se 13-5n-2e, dk.

SABINE PARISH—Alford & Cleary Bros., Jackson 1, se nw 10-9-13, lcn. Alford & Cleary Bros., Patrick 1, sw ne 11-9-13, lcn. Alford & Cleary Bros., Patrick 2, sw ne 11-9-13, lcn. Barbare et al, Ryals 1, nw nw 27-9-13, elev 196 ft, base Midway 1542 ft, setting 6-inch cas, td 1544 ft. C. M. F. Oil Co., Aaron & Musser 1, nw nw 32-9-13, rig. Evans Bros., Crawford 1, 20-9-13, lcn. R. L. Gay, Tr., Long-Bell A-1, nw nw 10-8-13, arr res 6882 ft. R. L. Gay, Tr., Bowman-Hicks B-1, 22-10-13, lcn. R. T. Henderson, Sistrunk 1, se nw 9-9-12, dr 985 ft. Gibson-Johnson & Higgins, Frost Lbr. Co. 2, 15-9-13, dr 1660 ft. Lee & Burnett, Burkett 1, nw sw 10-9-13, elev 204 ft, base Midway 1472 ft, sd 1620 ft. LeGrand & Jackson, McGough 1, 2-8-10, sd 2200 ft. H. C. Lessenger, Bowman-Hicks 1, nw sw 13-9-13, lcn. C. D. Loe, Tr., Whitney Corp., nw ne 12-9-14, dr 1500 ft. Loring Oil Co., Bowman-Hicks 21, 16-7-12, elev 247 ft, dr 4992 ft. Ben Merritt, Lucius 1, sw ne 4-5n-12w, dk. M. W. Ransom, Simpson 1, 30-7-10, dk. Rockmill et al, Bowman-Hicks 1, ne nw 36-9-14, sp 10-inch cas 50 ft. Rockmill et al, A. M. Cassell 1, ne ne 35-9-14, dk. Rockmill et al, Patrick 1, ne sw 21-9-13, rig. Sabine Prod. Co., Whitney Corp. 1, sw sw 4-9-13, Nacatosh 1456-1551, 8-inch cas 1473 ft, dr 1904 ft. Sandfield Oil Co., Bowman-Hicks 1, ne ne 26-9-13, elev 302 ft, sandy marl (Nacatosh) 1707-74 ft, arr bail, td 2200 ft chalk. Service Drilling & Roy. Corp., Whitney Corp. 1, se se 32-10-13, sp 10-inch 55 ft. E. M. Self, G. I. Paul 1, ne sw 9-9-13, dk. Simmons et al, Fleming 1, se se 11-8-13, rig. C. W. Smith et al, Pattison 1, 30-10-11, dr 1160 ft. Southland Drilling Co., Frost Lbr. Co. 1, ne ne 13-9-11, elev 310 ft, dr hd chalk 2174 ft. Mrs. Gertrude Terry, Tr., A. Burkett 1, ne nw 10-9-13, lcn. W. M. Ungerman, Cross 1, sw se 25-8-11, dr 957 ft. Ben Youngblood et al, A. J. Burkett 1, ne nw 10-9-13, dk.

UNION PARISH—E. S. Goens, Frost Lbr. Co. 1, 17-22-2e, rig. Wing Hong, Tr., Union Sawmill 1, se se 15-22-1e, 10-inch 70 ft.

WEBSTER PARISH—Silvey et al, Drake 1, 14-19-10, sp dr 75 ft.

WEST CARROLL PARISH—Mamie S. McCurry et al, Richardson & Donnan 1, 13-19-9e, rig.

WINN PARISH—P. V. T. Oil Co., Southern Advance Paper Co. 1, nw sw 28-13-5w, wo cas 1050 ft.

VERNON PARISH — Llano Coop, Colony Fee 1, 34-2n-9w, top Jackson 2055 ft, top Cockfield 3150 ft, sd wo 3344 ft.

ARKANSAS FIELDS

Miller County Acreage Assembled for Test

Texarkana, Ark.—Byrd and associates have blocked 5000 acres in Miller County, southwest Arkansas, centering in Section 20-18-27, for a 3000-foot test. Miller County has seen considerable wildcatting since recent completion of a 25-barrel daily oil producer in lower Woodbine or top of lower Cretaceous at 2954 feet.

Fox and Langford's Coleman Brothers 1, SE SE Section 25-16-25, LaFayette County, southwest Arkansas, was abandoned as a dry hole November 26, at total depth of 3270 feet in red beds; elevation was 225 feet. What is believed to have been Woodbine sand was logged from 3070-89 feet and while it was well developed there was no saturation. Some geologists think the location was too far north and was in and not south of the Irma Graben. These operators may drill

another test a half-mile south of this test and some additional acreage is being acquired. Frank Foster, East Texas operator, is interested with Fox and Langford.

El Dorado, Ark.—E. H. Cassidy has materials on location to drill a test in SE SW Section 10-17-16, Union County, Arkansas. The test is F. L. Dumas 1.

Arkansas Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
LA FAYETTE COUNTY—		
Fox & Langford (Frank Foster et al), Coleman Bros. 1, 25-16s-25w	*	3270

New Operations

MILLER COUNTY—R. G. Baker, E. L. Beck 1, 150 ft n and 150 ft e of swc sw¼ se¼ sec 33-15-28.

Wildcat Drilling Report

(Wells shut down not included)

CLEBURNE COUNTY — Fred S. Craver, Donithan Lbr. Co. 1, sw sw 34-11-9, dr 3300 ft.

COLUMBIA COUNTY — Kendall Oil Co., Fullenwider & Kitchen 1, ne ne 13-17-22, bailing, td 2500 ft.

LA FAYETTE COUNTY—Chas. McDonald, Allen 1, 11-19-26, sd 2645 ft. Sam Wilson, Jr., Smith 1, nw se 24-19-23, rig.

LITTLE RIVER COUNTY — American Portland Cement Co., Fee 1, sw ne 21-12s-32w, dr 665 ft. M. E. Sanderson, Hale 1, se se 22-12s-29w, sd 1420 ft.

MILLER COUNTY—Roy Baker et al, E. L. Beck 1, sw se 33-15-26, sp 10-inch 100 ft, dr 120 ft. Dennis & Cubbage, Head 1, sw sw 20-15-26, core 2900 ft. Duluth-Ark. Oil Co., Beck 1, nw sw 34-15-26, testing, td 2790 ft. Fitzwater et al, C. J. Norsen 1, se sw 20-15-27, sd 1945 ft. Lenz et al, Arthur Dean 1, nw se 19-15-25, sd 2900 ft. Pederson et al, Fouke 1, ne ne 11-17-27, 10-inch 105 ft. Jno. C. Rogers, Price 1, 17-16-25, rig. Bib Simmons, Lamb 1, 14-16-27 dk. Sorrells & Tidwell, McCowan 1, nw se 22-15-28, sd 750 ft.

ST. FRANCIS COUNTY — Kentucky-Ark. Oil Co., Inc., Britton 1, ne nw 1-4n-1e, fsh ds, td 3775 ft.

UNION COUNTY—Mamie S. McCurry et al, Rowland 1, sw sw 9-19-11, rig. Graves et al, Patterson 1, ne ne 31-19-16, dk. E. H. Cassity, Dumas 1, se sw 10-17-16, materials.

WOODRUFF COUNTY—B. F. Thompson, Rosser 1, se se 7-5n-2w, dr 811 ft.

YELL COUNTY—Rainbow O&G Co., Berry 1, ne ne 16-5n-24w, dk.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls.—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; woc—waiting for cement to set; wosr—waiting on standard rig.

SOUTHEASTERN STATES

Large Acreage Blocks Involved in Pending Plans for Extensive Drilling of Wildcats.

Contract 3500-Foot Test South Central Mississippi

Jackson, Miss. — Eastman-Gardiner & Company of Laurel, Mississippi, which recently completed a series of 20 core drill tests on a large wildcat block of acreage in Covington County, South Central Mississippi, has contracted with E. R. Owen et al of Jackson for a 3500-foot test on this block, it is reported. The test, location for which has not yet been announced, is expected to spud by December 15.

The core-drilling campaign is expected to be continued in four or more Southeast Mississippi counties in which Eastman-Gardiner & Company has large cutover land holdings. Dr. Arthur C. Trowbridge of the University of Iowa geological department, aided by Urban B. Hughes, a geologist, is making a geological survey of this company's holdings as a follow-up to a complete magnetometer survey said to have been previously made by L. Spraragen, the latter now being engaged in drilling a wildcat in Jasper County, Mississippi.

Mississippi Will Have Much Drilling Next Year

Hattiesburg, Miss. — Indications point to a considerable "play" in southern Mississippi during the coming year, both in the Gulf Coast area and in the "Eastern Conroe Trend."

In the Gulf Coastal area in Jackson County near Biloxi, Gulf Refining Company, the pioneer major company in the Jackson gas field, recently made location for Dantzler Lumber Company 1, SE NE Section 27-4s-8w. It is estimated by some that this company's holdings in the southern third of Mississippi and in southwest Alabama, including tracts under option for geophysical and geological exploration, aggregates 750,000 acres.

Humble Oil & Refining Company which is estimated to have two million acres under long-term non-drilling requirement leases in the Conroe trend across Central Louisiana, South Mississippi, and South Alabama, has had a permanently assigned geologist working out of Hattiesburg for three years and has recently augmented its force in South Mississippi.

Alfred S. Black is credited with having blocked over 600,000 acres in Southeast Mississippi. Many other companies and individuals have smaller holdings.

Possibility of production in the base of the Jackson formation at a shallow depth is not the only lure for exploration in South Mississippi. It is close to tidewater, the ports of Mobile, Gulfport and New Orleans being handy. Land can be leased in large blocks at cheap prices from lumber companies which have completed cutting the virgin pine forests and have to pay taxes on the cut-over lands. The recently enacted state oil conservation law in Mississippi is favorable to development.

Jackson Edge Completion Makes 45 Million Feet

Jackson, Miss.—James A. Alexander, Trustee's Clyde Hurst 2, SW NW NW Section 7-5-2e, Rankin County, in the northeast edge of the Jackson gas field, was completed last week at total depth of 2707 feet in Midway chalk, estimated at 45 million cubic feet of gas; elevation is 270 feet. Midway black shale was logged at 2324 feet and chalk at 2402 feet, where 6⅝-inch casing was cemented.

Southeastern States Field Developments

MISSISSIPPI

Completions

Company, Well and Location	Initial Production Bbls.	Depth
RANKIN COUNTY (Jackson)—		
Jas. A. Alexander, Tr., C. Hurst 2, 7-5n-2e	¶45	2407

Wildcat Drilling Report

(Wells shut down not included)

HINDS COUNTY—Love & Lancaster, Elton Plantation 1, se se 17-4n-1e, elev 260 ft, Selma chalk 4062-4550 ft, top Eutaw sand series 4565 ft, core Eutaw 4620 ft.

JACKSON COUNTY—Gulf Ref. Co.'s Dantzler Lbr. Co. 1, se ne 27-4s-8w, dk.

JASPER COUNTY — L. Spraragen et al, Bank of Philadelphia 1, se se 35-3n-12e, elev 600 ft, dr Wilcox 2610 ft.

LAMAR COUNTY (Purvis Dist.)—Stauffer & Kouri, Trs., Bond 1, sw ne 18-2n-14w, elev 364 ft, still trying for ds test, td 3026 ft. (Cane River). Dr. Chas. Gorr et al, Jordan 1, nw sw 1-2n-15w, dk.

MONROE COUNTY—P. J. McAlpine et al, Chas. Rye 1, se nw 22-15s-16w, dr 2205 ft.

WILKINSON COUNTY—Foster Creek Oil Corp., Foster Creek Lbr. Co. 1, nw nw 12-2n-2w, lcn.

ALABAMA

Wildcat Drilling Report

(Wells shut down not included)

LAMAR COUNTY (Vernon)—P. J. McAlpine et al, Gardner 1, nw nw 22-15s-17w, arr res, td 3350 ft.

MARENGO COUNTY—Jos. Bruner et al's Nolan's Store 1, 23-14n-1e, lcn; Fee 1, 36-14n-2e, lcn.

MOBILE COUNTY—J. C. Prine et al, M. & O. Ry. 1, se ne sw 33-2n-4w, dr 3800 ft.

WASHINGTON COUNTY—South Ala. O. & G. Co., Wilson Est. 1, 26-7n-1w, arr res, td 2250 ft.

NEW MEXICO . . . ROCKY MOUNTAIN

Dozen Tests Active in Hobbs Field. Alkali Butte, Wyo., Again in Producing Column With Oil From Lower Sand.

Hobbs Proration Agreement Up for Annual Renewal

Dallas, Texas.—A formal petition calling for an extension of voluntary proration enforcement in the Hobbs, New Mexico, field will be drafted by members of the proration advisory committee at a meeting slated to be held here December 7 at the Adolphus Hotel, and later the agreement will be submitted to New Mexico state officials for approval. The present proration program in force at Hobbs automatically expires January 10, 1933, having been approved by operators and later New Mexico for one year. E. G. Allen superintendent production, Shell Petroleum Corporation, Dallas, is chairman of the committee.

Efforts to unitize the Hobbs field have been underway nearly a year, but apparently will fail to materialize through opposition voiced by a few property owners and also royalty interests.

Use of bottom hole pressure readings in part for determining proration allowances per well and unit in the field will likely be submitted to the operators at the pending meeting. The field is now prorated to 25,000 barrels daily, with the allowable distributed on a basis of 40-acre units and open flow potential-curve method.

Hobbs East Edge Producer Showing for Small Flow

Hobbs, New Mexico.—Preliminary production gauges on Repollo Oil Company's W. D. Grimes 2, an east edge location in the Hobbs field, indicates an absence of flush production after logging broken lime saturation at 4178-4224 feet, with a surface elevation of 3646 feet. This outpost, located near the center of south line NW Section 28-18s-38e, swabbed for three days, then flowed 65 barrel head oil in one hour after closed in over-night, then 125 barrels oil the following seven hours. It may be deepened as a final move to obtain a more prolific output, but in doing so would be risking bottom hole water, which has not appeared on the east side of the main part of the field.

An even dozen operations are active in the Hobbs field, including three about ready to complete on the Stanolind Oil & Gas Company's (was Midwest Refining Company) properties. This company's State 29, NW Section 10-19s-38e, is completing in lime at 4013-4164 feet after swinging 2½-inch tubing in hole at 4160 feet, and Turner 11-X, a townsite location, is drilling below 4010 feet after cementing 8⅝-inch pipe at 3990 feet. Byers 11, located south of Hobbs, is also drilling below 4010 feet.

Gypsy Oil Company contributed a new location for the extreme north end row of tests in staking Boon Hardin 2 330 feet from the south and 990 feet from the east lines of E½ of Section 18-18s-38e.

An old producer in the Jal district, Lea County, is to be restored to production this week, with pipe line connection afforded by Humble Pipe Line Company. Continental Oil Company and The California Company's E. J. Wells 1, SWc E½ NE Section 11-25s-36e, completed early September 1929 after plugging back from sulphur water at 3552-60 feet to 3440 feet, is running tubing to resume operations.

Alkali Butte Well Shows For Proving Deeper Sand

Shoshoni, Wyo.—The Texas Company is digging out cellar and installing a gate valve preparatory to making a test of State-Ridgway 2, SW SW Section 36-34n-95w, in the Alkali Butte field in Fremont County, Wyoming. This well gives every indication of being a good commercial producer and thereby proving the field for the deeper sands.

The Alkali Butte structure has been proved for gas production in the Frontier horizons, and for some oil from the shallower sands. It has not been on production, however, for several years past.

Three of Cut Bank Dozen Tests Nearing Completion

Cut Bank, Mont.—There are an even dozen active drilling wells in the Cut Bank field at this time, three of which are nearing completion, two in the oil sector and one in the gas territory. Santa Rita Oil Company's Yunck 2, NE SE Section 24-34-6w, is last reported to be showing oil below 2795 feet after having drilled through one sand at 2773-5 feet. Roy Tarrant should complete his Haglund 1, SE SW NW Section 13-34-6w, last reported drilling below 2465 feet. In the gas territory The Texas Company's Edris Fisher 1, Section 10-35-5w, is below 2833 feet and should reach its objective this week. The derrick at this test was damaged by fire when a flow of four million feet of gas was ignited in a sand at 2546 feet.

New operations which spudded in last week are Dakota-Montana Oil Company's Drumheller 1, SW SE NE Section 3-34-6w, and Alberta-Pacific Consolidated Oil Company's Kiesel 1, Section 11-34-8w.

Dutton Creek Test Showing For Good Producer

Laramie, Wyo.—Excellent indications for one of the best producers in the Dutton Creek field are reported by the Mutual Oil Syndicate from the No. 27 which is checking high on the structure. Cores at 1537 feet show good saturation and the subsurface geology checks so high that it is believed now that the lower sands (Dakota and Lakota) will probably be oil producing as they are in the Rock River field to the north. The well, NW SE NE Section 12-18n-78w, is one of a series being drilled by the Mutual and Ohio Oil companies for the purpose of developing a supply of natural gas for the City of Laramie.

The No. 27 is north and about 700 feet east of the axis of the structure in territory which has hitherto been untested. The well checks 85 feet higher than the discovery well in the field.

Another near completion in the field is Ohio Oil Company's Carbon 1, NW Section 18-18-77 which is coring in the top of the Muddy sand at 1950 feet. It will be a producer, but probably not so good a one as that of Mutual Oil Syndicate.

Fiddler Creek Wildcat Looks Like 50 Barrels

Osage, Wyo.—The Fiddler Creek wildcat southwest of the Osage field in eastern Wyoming which was drilled by Julius Peters of Great Falls and associates is now preparing to pump, with the estimate made that the well will be good for about fifty barrels per day. The well is known as Weitzell 1, SE SE NW Section 30-46-64. Two theories are held by geologists on its location,—one being that it extends the Osage field and is proving up another terrace, and another that it proves an entirely separate structure.

Ohio Plans Deep Test in Carbon County, Wyoming

Medicine Bow, Wyo.—Core drilling operations have been started by Ohio Oil Company on the Allen Lake structure to spot a location for a projected deep test. The structure is near Medicine Bow in Carbon County, and the company recently took options on several thousands of acres there for exploration.

Colorado Wildcat

(*Continued from page* 15)

Morgan Oil Company, 20,000 acres; Colorado Associated, 17,000 acres; W. L. Christianna and Centenial Plains, 10,000 acres; Tulsa-Fort Morgan Company, 8000 acres; Indian Territory Illuminating Oil Company, 2500 acres; Empire Gas & Fuel Company, 2000 acres, and Producers and Refiners Corporation 1200 acres.

C. V. Addington is reported to have about 7000 acres which he has not sold or tied up. Other independents holding leases, royalties, or fee lands are George A. Vincent, C. D. Cunningham, T. H. Crawford, and C. A. Lee. Two important trades were reported this week in Buckingham acreage. Roy Franks, vice president and head of the land department of the Ramsey Petroleum Company, is reported to have paid $90 an acre for 320 acres of land northwest of the well. Tulsa-Fort Morgan Oil Company sold one fourth interest in its 15,000 acre holding for $45,000. The money is to be spent in completing Anthes 1, NE NE Section 24-8n-59w, five miles west of Tighe 1. The Anthes test has been shut down for several months with hole bottomed at 3318 feet.

Should the well prove to be a producer a ready market and outlet awaits production. The oil is of a good refinable grade similar to the crude from the Greasewood field. The oil is reported to be 40° Be, and is of a brownish green color with a paraffin base.

Production should find a market in Continental Oil Company's refinery in Denver which has been securing most of its crude from Wyoming, Montana, and the Mid-Continent. The Ramsey test is located 2½ miles south of a spur of the Burlington railroad. Continental Oil Company has a six-inch pipe line from the rail head on the Union Pacific railroad at Orchard, Colorado, to Greasewood Flats. Extension of the line 13 miles across even terrain to the New Raymer - Buckingham territory would be a simple job.

If a major pool is found in the area, Continental Oil Company will probably build its proposed pipe line from Denver to Orchard. A year ago the company secured right-of-way for a 70-mile, six-inch pipe line to Orchard, but did not carry the project into construction through awaiting sufficient production from Greasewood Flats to insure a steady supply of crude.

Clyde L. Wagner, Ramsey Petroleum Company's geologist, located the test and mapped the structure. The structure is reported to be eight miles long and four miles wide with a thumb sticking out from the southwest.

Conflicting geological opinions among major company experts have existed since the first mapping of the structure. Four different highs have been located. One geologist claims that the town of Buckingham is located on the high of the structure. Wagner has insisted from the start that Mid-Continent geological conditions exist in northeastern Colorado. He is said to have predicted subsurface conditions at the well almost exactly as proven by the drill. Wagner surveyed the Oklahoma City structure and located the gusher that proved the territory. Later he located two tests that proved two additional pools near Oklahoma City.

Hot rivalry will exist as to what town will get the big play from the oil fraternity if the test opens a major field. The test is 45 miles northeast of Greeley, about the same distance southwest of Sterling, and about 30 miles north of Fort Morgan. Fort Morgan has two railroads, the Union Pacific and the Burlington. Oil men have been pulling for Greeley, as they claim they received more courteous treatment there.

Rocky Mountain Field Developments

WYOMING

Completions

Company, Well and Location	Initial Production Bbls.	Depth
WESTON COUNTY (Osage Field)—		
Duluth-Wyoming Oil Co., 2, se sw 12-46-64	2	1495

Wildcat Drilling Report

(Wells shut down not included)

BIG HORN COUNTY—Crosby & Huntington, Denio 1, Tract 43-C, 15-55-97, to resume dr, td 610 ft.

CROOK COUNTY—St. Onge O&G Co., ne se 20-53n-61w, dr 780 ft.

FREMONT COUNTY—Ward O&G Co., 28-34-90, fsh job completed, dr ahead 4150 ft.

NATRONA COUNTY — Summit Oil Co., Trevett 1, 21-33-80, dr 1785 ft.

PLATTE COUNTY—T. B. Oberman, nw se 30-21-68, dr in lime 150 ft.

WASHAKIE COUNTY—Bales Oil Trust, Brome 1, ne nw 13-48n-90w, prep to pump 1430 ft.

WESTON COUNTY — Julius Peters et al, Weitzell 1, nw 30-46-64, ready to pump 4590 ft. Gose Syndicate, ne 28-37n-63w, ur 6-inch, td 5050 ft.

MONTANA

New Operations

GLACIER COUNTY (Cut Bank field)—Hannah-Porter Oil Co., Britton 1, ne ne 23-34-6w.

Wildcat Drilling Report

(Wells shut down not included)

CARBON COUNTY—Corbett Royalty Co., sw se 1-6s-23e, dr 1225 ft. Jack Creek O&G Co., 2, se 15-7s-23e, td 1235 ft.

FERGUS COUNTY—Melton Corporation, 1, sw 24-21n-17e, ur 6¼ inch for w.s.o., to dd from 3305 ft.

GALLATIN COUNTY — Montana Gas & Pete Corp., Adams 1, 35-1n-2e, td 1700 ft.

GLACIER COUNTY—W. M. Fulton, ne 16-34n-6w, mvg in.

GOLDEN VALLEY COUNTY — Golden Valley Oil Co., 2-6n-22, rig burned, td 3400 ft.

LIBERTY COUNTY — Peoples O&G Co., nw 17-35-6e, dr 2810 ft.

TOOLE COUNTY—Liquid Gold Oil Co., 1, 25-36-1e, recem cas at 2644 ft.

VALLEY COUNTY—Opheim O&G Co., ne 28-37n-38e, sd temp 1000 ft.

YELLOWSTONE COUNTY—Peter Antonioli, ne ne 2-2n-25e, casing on hand, ready to run 2370 ft. Rice-Fulton et al, 20-2n-23e, dr and prep to run surf. cas 260 ft.

COLORADO

Completions

Company, Well and Location	Initial Production Bbls.	Depth
WELD COUNTY (Greasewood field)—		
Ohio Oil Co., Butters 1, 7-6n-60w..	30	6790

Wildcat Drilling Report

(Wells shut down not included)

ADAMS COUNTY—Hills Dome Lease Dev. Co., se 27-3s-68w, stg 4119 ft.

ARAPAHOE COUNTY—McDeb Drlg. Co., Fitzsimmons 1, ne 7-4s-66w, fsh 4¾ inch, td 6110 ft.

DELTA COUNTY—Black Canyon O&G Co., Lot 12, 5-15s-94, install larger rig 330 ft.

ELBERT COUNTY—J. M. Botts, se 7-8n-58w, sd 4250 ft.

EL PASO COUNTY—Gulf States Oil Corp., Carson 2, ne 10-16s-66w, dr out plug 2000 ft.

LA PLATA COUNTY—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, rig up. J. W. Irwin & Co., Doescher 1, nw 29-33-13, to dd from 3171 ft.

LAS ANIMAS COUNTY — P. W. Harr, Schneider 1, sw se se 10-33s-63w, completed contract, to dd 2010 ft.

LARIMER COUNTY—C. Leonard Smith, U. P. 1, se sw 31-12n-69, fsh tools 172 ft.

LINCOLN COUNTY — Eastern Colo. Oil Corp., State 1, nw 36-14s-57w, hfw from Dakota 3464 ft.

MOFFAT COUNTY—W. A. Myers et al, sw sw 16-4n-101w, sd for winter 3250 ft.

MONTROSE COUNTY—Uncompahgre O. & G. Co., Vandemark 2, 27-50n-10, resume 800 ft.

ROUTT COUNTY—Mid-Colo. Pete Co., Omholt 1, se 29-4n-87, cem cave, 2M gas show, to dd 1917 ft.

WELD COUNTY—Reiter-Foster Oil Corp., Wilson 1, ne se 24-6n-61w, dr 590 ft. Ramsey Pete Corp., Tighe 1, sw ne se 15-7n-59w, prep to run 5¾ inch to top of Dakota at 6762 ft.

NEW MEXICO

Completions

Company, Well and Location	Initial Production Bbls.	Depth
CHAVES COUNTY—		
R. D. Compton, sw se 20-10s-24...	*	2275

Wildcat Drilling Report

(Wells shut down not included)

BERNALILLO COUNTY—Norrins Realty, Pajarito Grant 1, 22-9n-1e, standardizing at 3359 ft. Norrins Realty, Galegas Grant 1, 19-11n-4e, dr 100 ft.

CHAVES COUNTY — Warman Oil Trust, Weldon & Hoar, se 9-14s-25e, sd for casing 193 ft.

DE BACA COUNTY—Landowners Oil Co., State 1, ne 16-1s-27e, fsh ur lug 5240 ft.

DONA ANA COUNTY—Middle States O. & G. Co., Boretzi 1, 14-36-5e, rig up. Viking O. & G. Co., sw nw 26-35-5e, dr bel 250 ft.

GUADALUPE COUNTY—N. M. Prod. & Ref. Co., McMillan 1, 24-5n-16e, wait for orders 4507 ft. N. M. Explor. Co., Ltd., Anton Chico Grant 1, sw 20-9n-17, dr 945 ft.

RIO ARRIBA COUNTY — Pan States Oil Co., 26-3s-1e, rigging up.

ROOSEVELT COUNTY — Peterson et al, Good 1, se nw 32-5s-30e, rig up.

SAN MIGUEL COUNTY—Cabra Springs O. & G. Co., Thompson 2, ne 22-12-22, wait for water 410 ft.

SANTA FE COUNTY—Kelsey Clients Dev. Est., 1, 26-10n-10e, work with 8¼ inch at 861 ft.

VALENCIA COUNTY — Homer G. Mills, Inc., Tome 1, nw sw 29-6n-3e, sd 500 ft. Western Nat'l Resources Corp., Inc., San Clemente Grant 2, ne 5-6n-1e, dr 2756 ft. Gravity Petroleum Co., Clara R. Reed 1, 30-11n-9w, cellar completed.

GEOPHYSICS SYMPOSIUM

(December, 1932)

APPROX. 175 PP., 75 ILLUS., POSTPAID, $1.50

Eleven major papers presented at the annual meetings (1932) of The American Association of Petroleum Geologists and the Society of Petroleum Geophysicists.

This symposium, containing subjects on magnetic, seismic, gravitational, electric, and radioactive phases of geophysics, is published in the December, 1932, *Bulletin*, which also contains the annual index of the Association *Bulletin* for 1932.

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MICHIGAN FIELDS

Clare County Wildcat Test Shows 10 Barrels Oil

Mt. Pleasant, Mich. — Theodore Oil Company's Thompson Brothers 1, Clare County, Greenwood township, Section 35, a wildcat oil test in the northern part of Central Michigan, made a 10-barrel oil show from 4185 feet November 28 and was shut down at 4203 feet with an engine break down. The operators prepared to swab and clean out the hole and continue for a deeper test of the sand as soon as the engine was repaired.

The 10 barrels of oil bailed from the well was a sweet good grade petroleum comparing favorably with that being produced in other proven areas of the state. A soft gray lime formation was struck at 4180 feet and the show made five feet deeper in a similar sand. There was a difference of opinion as to whether the sand was the Dundee, the producing sand of Central Michigan, or the Upper Monroe.

The test is located approximately six miles north of a proven natural gas field in Clare County and about 15 miles north of oil production in Isabella County.

Two Dundee Completions Make Good Producers

Mt. Pleasant, Mich. — Four completions in the Dundee formation were made during the week, two of which made good commercial wells while one was light and the other dry.

Pure Oil Company's Seeley 3, Midland County, Greendale township, Section 9, was completed for 295 barrels initial at 3573 feet while a direct west offset, W. A. Robinsons' Skinner 3, same section, had a 24-hour initial of 190 barrels from 3568 feet.

Gordon Oil Company's Hewitt 2, Midland County, Lee township, Section 18, located on the east border of the Central Michigan field, showed 500 feet of oil in the casing after being drilled into the Dundee to 3565 feet. Acid was run and production boosted to 20 barrels a day.

Pacific Oil & Gas Company's Hoyt 1, a wildcat test located in Midland County, Jasper township, Section 24, showed salt water at 3555 feet and will be plugged and abandoned.

Mt. Pleasant, Mich., Dec. 2.— Pure Oil Company's wildcat, Yost 1, Midland County, Greendale Township, Section 35, four miles south of the proven Central Michigan field, flowed 120 barrels in two hours open from 3442 feet and made approximately 1000 barrels in 24 hours pinched in, Thursday. Dundee lime, from which the well is producing, was topped at 3421, 22 feet higher than an abandoned well two miles east and 75 feet higher than the Dundee in the main field. The well is believed to have opened a new pool in Michigan on a high Dundee dome.

It was shut in after all tanks on the site were filled. Pure Oil Company is building a three-mile, three-inch line to the well to handle the production, and until completed no 24-hour gauge will be available.

Being located in the center of several thousand acres of undeveloped land, it is expected to be followed by intensive development.

The strike is unquestionably the most important in Michigan since the Central Michigan East Extension pool was located in July, 1931. The well originally was started as a deep test to the Sylvania, expected at approximately 6000 feet.

Tests Will Determine Trend Of Isabella Production

Mt. Pleasant, Mich.—Two tests now under way and a third projected will determine in a large measure the productive range of the Isabella County, Broomfield township, natural gas pool.

Shell Petroleum Company is spudding Fritz 1, Section 13, which is located two miles southeast of a producing gas well in the pool. Rig is being built on W. J. Soverign's Pere Marquette 2, Section 9, which is an offset well to a producer.

A third new location in Broomfield township has been made in Section 2 on the Herman Cook farm by Otis Denslow of Weidman, Michigan, who has leased the farm tract. Operations as yet have not been started. The projected location is approximately 1½ miles east of production.

At the present time there are 14 producing gas wells in the township with

THE FORT WORTH LABORATORIES
Field Gas Testing. Analysis of oil field brines, gas minerals and oil.
Sell Thermometers, Hydrometers and Laboratory Glassware.
F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
828½ Monroe St., Ft. Worth, Tex.

a combined initial daily flow of 55,000,000 cubic feet. The wells produce from approximately 1300 to 1450 feet deep. Proven acreage in the pool at present is about 3000 acres.

Michigan Oil Man Bags Bear on Peninsula Hunt

Mt. Pleasant, Mich.—While scores of sportsmen have been successful during the past two weeks in shooting a buck during the two weeks Michigan deer hunting season only a few have been lucky enough to bag a black bear, regarded by most sportsmen as a superior accomplishment.

J. C. Arthurs of Mt. Pleasant, head of the Arthur's Drilling and Contracting Company, a well known eastern states oil field company, returned to his home here this week with a 150-pound bear which he shot while hunting in the Michigan Upper Peninsula.

Michigan Field Developments

Completions

Company, Well and Location	Initial Production Bbls.	Depth
MIDLAND COUNTY—		
Pure Oil Co., Seeley 3, Greendale Twp., nw sw se, Sec. 9	295	3573
W. Hunter Atha, State Michigan Land A-1,	40	....
W. A. Robinson, Skinner 3, Greendale Twp., ne se sw, Sec. 9	190	3568
Edward Stewart & Co., Opperman 2	15	....
Pacific Oil & Gas Co., Hoyt 1, Jasper Twp., nw nw ne, Sec. 24	*	3555
Gordon Oil Co., Hewitt 2, Lee Twp., nw nw nw, Sec. 18	20	3565

New Operations

CLARE COUNTY—Strange Oil & Gas Co.'s Littlefield Ranch 1, Surrey Twp., sec 9, se sw sw.

ISABELLA COUNTY — Witmer Oil Co.'s Cashen 2, Denver Twp., sec 30, nw ne sw.

SAGINAW COUNTY — Smith Petroleum Co.'s Johns et al 1, Birch Run Twp., sec 21, w½ sw¼.

OCEANA COUNTY—Johnson Oil Refining Co.'s Gilpin 1, Leavitt Twp., sec 15, sw se.

Wildcat Drilling Report

(Wells shut down not included)

MIDLAND COUNTY—Pure Oil Co.'s Yost et al 1, Greendale Twp., sec 35, dr 3000 ft.

CLARE COUNTY—Theodore Oil Co.'s Thompson Bros. 1, Greenwood Twp, sec 35, top Dundee lime 4180 ft, 10 bbl oil show at 4185, sd to co 4203 ft.

GRATIOT COUNTY—J. G. Tiplady's Laycock 1, Arcada Twp, sec 11, co 1100 ft. Shell Petroleum Co.'s Covell 1, Seville Twp, sec 15, drv pipe 150 ft. Shell Petroleum Co.'s Mellinger 1, North Star Twp, sec 9, drv pipe 70 ft.

ISABELLA COUNTY — Shell Petroleum Co.'s Fritz 1, Broomfield Twp, sec 13, sp.

MUSKEGON COUNTY—H. and W. Feicke's Feicke 2, Fruitland Twp., sec 1, sp.

SAGINAW COUNTY—Webber's Kirchner 1, Tittatabwse Twp, sec 15, co 4300 ft.

NEWAGO COUNTY — Hesperia Petroleum Co.'s Jones 1, 14n 14w, sec 20, dr 2700 ft.

MACOMB COUNTY—H. H. Brown's Bower 1, Chesterfield Twp, sec 29, dr 750 ft.

OCEANA COUNTY—A. S. Cochran's Hannum 1, Elbridge Twp, sec 31, dr 2100 ft. L. E. DuVall's Walace 1, Elbridge Twp, sec 34, dr 900 ft.

CASS COUNTY—Robert Anderson's Conkright 1, North Porter Twp, sec 29, dr 300 ft.

EASTERN STATES

Field Developments

Completions

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Melvin 312	5	....
Mix Creek Oil Co., Fee 66	3	....
E. R. Maxwell, Franchot 5	3	....
Minard Run Oil Co., Cram 25	2	....
J. A. Walters Estate, Fee 5	2	....
J. H. Dempsey & Co., Gill 6	4	....
A. J. Foster, Quintruple 2	3	....
Hunter Oil Corp., Hostetter 1	3	....
W. W. Parmenter & Co., Parmenter 4	3	....
Middleborough Estate, Fee 6	2	....
Venango Oil Co., Fee 6	2	....
Medical Oil Co., Booth 3	3	....
Ball & Ryan, Robinson 11	2	....
CLARION-VENANGO—		
Clease & Co., Fields 13	*	....
A. D. Shorts & Co., Black 1	*	....
CENTER-MIDDLE FIELD—		
Morrison Bros., New London 20	2	....
BUTLER COUNTY—		
W. I. Gettman, Grubbs 1	¶¼	....
NEW YORK-PENN GAS FIELD—		
Peterman & Co., Eddy 1	*	....
NEW YORK		
ALLEGANY COUNTY—		
Ryder Scott, Scott 9	3	....
Forest Oil Corp., Fee 90	2	....
Forest Oil Corp., Fee 91	2	....
J. M. Hughes & Co., Hughes 6	3	....
South Penn Oil Co., Reeland 2	10	....
SOUTHEASTERN OHIO		
MONROE COUNTY—		
Frank Ward & Co., Gates 6	¶½	1648½
WASHINGTON COUNTY—		
Otto Heldman, Greathouse 2	¶½	1904
O. I. Gabbert, Shay 6	*	338
CENTRAL OHIO		
HOCKING COUNTY—		
Ohio Fuel Gas Co., Culp 1	¶1¼	2466
LICKING COUNTY—		
H. E. Perkins, Babcock 1	50	3007
McMillan & Co., Kovarik 1	¶3	2454
NORTHWESTERN OHIO		
WYANDOT COUNTY—		
Ridge Oil & Gas Co., Hiles 1	¶½	1365
Jones & Coyle, Brillhart 2	12	1320
WOOD COUNTY—		
Pember & Raydure, Wagnor 1	2	1484
INDIANA		
PIKE COUNTY—		
Indiana Southwestern Gas Corp., Bradfield 1	*	1150
C. E. Noble & Co., Adams 1	¶1½	1041½
KENTUCKY		
DAVIESS COUNTY—		
Onsel Bros. & Co., Taylor 3	*	....
S. M. Sherman, Mayfield 3	75	....
Mayfield 4	70	....
Jetson Oil Co., Hinton 5	10	690
George C. Staves & Co., Weaver 1	*	....
McLEAN COUNTY—		
Hupp, Duff & Co., Morgan 1	51	....
Otto Nethers & Co., Foley 2	*	....
William Stevenson, Hacket Hrs. 1	*	1400
HENDERSON COUNTY—		
Imperial Oil & Gas Products Co., Freeman 3	24	....
OHIO COUNTY—		
S. R. Nigh & Co., Kelley 340-a 18	*	720
Creek Drilling Co., Smith 6	*	....
B. & B. Oil Co., Greer 7	25	609
WEST VIRGINIA		
CALHOUN COUNTY—		
W. S. Dailey & Co., Stump 1	¶¼	1951
CABELL COUNTY—		
Midway Gas Co., Morrow 2	¶½	2871
LINCOLN COUNTY—		
R. H. Adkins & Co., Elkins Hrs. 1	¶¼	2339
B. C. K. Gas Co., Lunsford 1	¶¼	1983

Heeter's Packers and Swabs

For over a quarter century the name of C. M. Heeter Sons & Co. has been known to the oil men of America.

Heeter's Improved Patent Swabs, Corrugated Friction Sockets, Wire Line Pumping Outfits, Sand Pumps and other Gas and Oil Well Materials.

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Main Office and Works, Butler, Pa.

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$1 a day more for two persons at the Hotel Lexington. For instance, rooms at the minimum rate of $3 a day for one person, are only $4 a day for two.

And the Lexington is a new hotel, located in the Grand Central Zone, one block from fashionable Park Avenue.

HOTEL LEXINGTON

Grand Central Zone, Lexington Ave. at 48th St.
NEW YORK CITY
CHARLES E. ROCHESTER, Gen'l Manager

NEWS *from the Industry's* EQUIPMENT MAKERS

Bristol Company Opens Factory in London

The Bristol Company of Waterbury, Connecticut, announces the establishment October 1, of a factory at London, England, under the name of Bristol's Instrument Company Limited Howard H. Bristol, president of The Bristol Company, is chairman of the board of directors, and Alexander L. Dugon, of J. W. & C. J. Phillips, Ltd., is vice chairman and managing director.

The plant is located at 144 Pomeroy Street, New Cross, London, and consists of an office building and a new two story factory building of modern construction. The factory is completely equipped with machinery, tools and testing equipment, and with British employees especially trained and skilled in the art of instrument making. It is prepared to manufacture and service the complete line of Bristol's indicating, recording and controlling instruments.

Bassett Representing Inferno in Coast Area

The Inferno Company, Shreveport, Louisiana, announces appointment of W. S. Bassett, formerly special representative of the Boiler Works of the Oil Well Supply Company, of Oswego, New York, as representative in the Gulf Coast territory, with headquarters at Houston. His territory will include all of the Texas and Louisiana Gulf Coast.

W. S. BASSETT

California Jar Makers Consolidate Business

Beck Oil Tool Company, Los Angeles, has merged with the J. H. Kammerdiner Company of the same city, electing Mr. Kammerdiner president of the reorganized Beck Oil Tool Company and J. S. Beck general manager, thus bringing together two prominent drilling jar manufacturers.

According to Mr. Kammadiner, the concern will rent jars in California only, but will sell the Beck jar outright in other fields.

J. S. BECK

Dayton Rubber Man Goes To Europe in Blimp

A. L. Freedlander, vice president and factory manager of The Dayton Rubber Manufacturing Company, rode the Graf Zepplin from South America to Germany when this famous airship made its fourth trip from Pernambuco, Brazil, on October 29.

In South America, Mr. Freedlander investigated the possibilities and the development of rubber plantations in the Latin American countries, and in Europe will confer with leading engineers in regard to recent developments in the manufacture of Dayton cog-belt drives and other products.

GUY DANIELSON

Danielson at Oklahoma City For Chicago Pneumatic

Chicago Pneumatic Tool Company, oil tool division, announces acquisition of services of Guy Danielson as special representative with offices at 1 West 16 Street, Oklahoma City. Mr. Danielson formerly was secretary and treasurer of the Brauer Machine and Supply Company.

Pacific Pump Works Opens Establishes Tulsa Branch

The Pacific Pump Works, Huntington Park, California, announces a line of deep well oil pumps, and that a subsidiary shop and organization has been established at Tulsa, Oklahoma, known as the Mid-Continent Pump Supply Company. This company carries a full supply of liner pumps and renewal parts, and is equipped for service, including the re-grinding of plungers and liners. The Mid-Continent Pump Supply Company is headed by Roy A. Dunbar, who has been prominent in the oil well pump industry for many years.

Industrial Institute Offers Diesel Corresponding Course

A Diesel engine correspondence course is being offered by the Industrial Institute, 901 Bergen Avenue, Jersey City, publishers of "Diesel Reference Guide & Directory" and "Diesel & Oil Engineering Hand Book."

The course, which is in 12 lessons, over a period of one year, and along practical lines, is under direct supervision of Julius Rosbloom, author of numerous technical books.

New Equipment for the Field

MACHINERY • TOOLS CATALOGS • BOOKS

▼ ▼ ▼

1. Special Motor Truck

THE AVAILABLE TRUCK COMPANY

The Available Truck Company, 2501 Elston Avenue, Chicago, Illinois, announces Model W-140, incorporating a number of advanced features.

The frame construction is characterized by the introduction of the heavy "X" member, arc welded, cross-bracing structure. The side rails of the frame a pressed steel with 10-inch depth along the section carrying the greatest stresses, then tapered to make possible low chassis lines. It is claimed this new frame construction gives materially increased strength and carrying capacity with an actual saving in total weight over the old design.

A special spring of alloy steel and a new spring mounting which eliminates bushings and pins is also a feature.

The power plant is a Waukesha of heavy truck construction, and carries the Ricardo high compression head, pressure oiling, oil and air filters, and is mounted on rubber cushions.

Other features include straight line drive, four forward speed transmission, hydraulic four wheel brakes, and Bendix Starter.

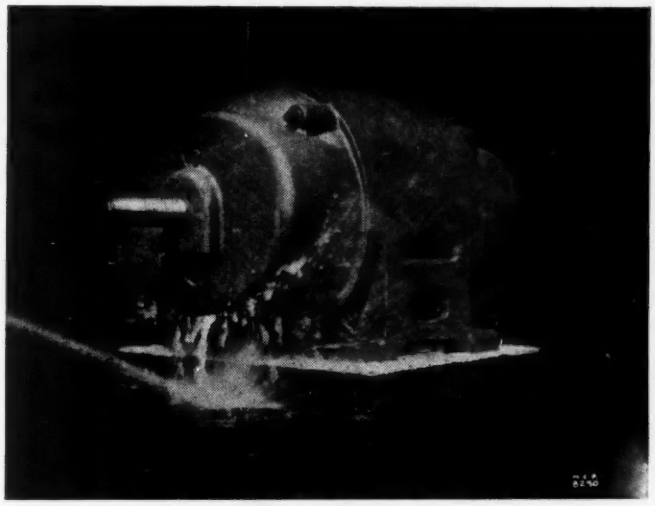
2. Ratchet Burring Reamer

GREENFIELD TAP & DIE CORPORATION

Greenfield Tap & Die Corporation, Greenfield, Massachusetts, has introduced to the trade a Ratchet Burring Reamer, No. 246-R, for removing burrs quickly and easily from the inside of pipe.

It embodies several features which insure easy cutting. The reamer has spiral flutes, which give it a shearing action (easy cutting), and at the same time feed it into the burrs, so that great pressure on the stock is unnecessary. The ratchet head is completely enclosed, which keeps the moving parts free from dirt and burrs, and the polished tubular handle is light in weight and unbreakable.

While designed primarily for removing burrs from pipe ¼" to 2", it can also be used effectively for enlarging holes in sheet metal, countersinking, and for various other purposes.



Louis-Allis Splash-Proof Motor

3. Splash-Proof Motor

THE LOUIS ALLIS COMPANY

The Louis Allis Company, Milwaukee, Wisconsin, announces a splash-proof motor to prevent entrance of water splashed with terriffic pressure from any angle, yet adequately ventilated and built in the same dimensions as standard open motors.

A double baffle in an elliptical-shaped air passage in each endbell provides the protection. This construction, while permitting free passage of ventilating air, traps and drains water splashed into the air openings at the bottom of the elliptical-shaped chambers. Another original feature is a shaft guard which breaks the force of a stream directed along the shaft extension and prevents water from entering the bearing chamber.

4. Tractor Truck

FOUR WHEEL DRIVE AUTO COMPANY

Four Wheel Drive Auto Company, Clintonville, Wisconsin, announces a 72,000-pound gross load tractor truck designed to meet requirements for a compact heavy duty transportation unit.

The manufacturer states that one of the new tractor trucks in a typical installation carries a gross of 23,760 pounds, distributed with 7950 pounds on the front axle and 15,810 pounds on the rear axle, using this statement to illustrate how the unit

— — — — — — *MAIL COUPON* — — — — — —

THE OIL WEEKLY,
Houston, Texas, U. S. A.

Please see that I am supplied, without obligation, additional information on New Equipment Items Nos. ———— described in the December 5, 1932, issue of THE OIL WEEKLY.

Name .....

Company .....

Address .....

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IN 36 HOURS
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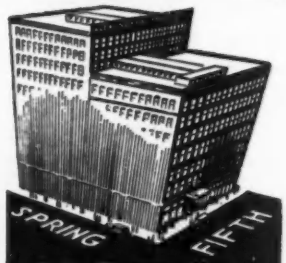

Hotel Alexandria is the Official N.A.A. Headquarters and home of Aviation Club.

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Others from $3 to $12

The Alexandria Hotel is an affiliated unit of The Eppley Hotel Company's 20 hotels in the Middle West, Louisville, Ky., Pittsburgh, Pa. and the Hamilton chain of Hotels in California.

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meets the trend in highway regulation which restricts the length and axle weight of tractor and trialer units.

The truck has four-wheel traction, a 120-inch wheelbase; speed of 38 miles per hour; 125 horsepower motor equipped with down draft carburetion and Ricardo head; four speeds forward and one reverse; eight-inch silent chain drive; positive lock center differential, and a double set of brakes.

5. Pistons

KIBELE MANUFACTURING COMPANY

Kibele Manufacturing Company, San Antonio, Texas, announces a new line of "Super" pistons for slush pump in sizes of six inches and larger. These are made to fit any make or size of pump rod or liner. The Kibele "Super" piston consists of only three parts—the piston body, packing ring and follower plate.

Piston bodies and follower plates are of the finest chrome-nickel alloy steel. Packing rings consist of a metal core around which is molded a hard rubber center which serves as a buffer for softer rubber of high tensile strength on the lips. These packings, when worn, can be replaced without removing the rods or piston bodies and the pistons made good as new.

Piston bodies and follower plates are made sufficiently small so that there is no possibility of their scoring the liners.

6. Portable Electric Cord

THE OKONITE COMPANY

The Okonite Company, Passaic, New Jersey, announces a line of portable cords and cables having a special outer sheath which it claims is impervious to the destructive action of oil or grease. The new line of cords is trade-marked "Oilproof Okocord."

Butane-Propane Handbook

Early in November Western Gas brought from the press the first edition of the "Handbook of Butane-Propane Gases," which has been under preparation for the past several months. Contents of the volume deal with both general and technical phases of the liquefied petroleum gas industry in its several departments—production, transportation, distillation, utilization. Particular interest attaches to the publication due to its being the first compilation of reference data pertaining to this industry.

The first edition of the handbook represents the joint effort of a score or more individuals directly associated with butane-propane enterprises. Its range of subject matter, covering the industry in a most thorough manner, is handled in 12 chapters.

In addition the handbook presents a catalog section giving detailed information on products designed for butane-propane service, a buyer's guide, listing firms supplying equipment, appliances or services for the industry; a directory of central plants enumerating the operating town plants distributing piped butane-propane gases; a complete bibliography covering the literature on liquefied petroleum gases, and a detailed subject index to the contents of the book.

Copies of the Handbook on Butane-Propane Gases can be secured from the Gulf Publishing Company, Houston, Texas. Price, $5.00.

Squeaks *from the* BULL WHEEL

Once there was a husband who was very fond of looking on the wine when it was red. His wife determined to cure him of his bad ways, and with the aid of a sheet and an electric torch transformed herself into a very fair imitation of a ghost. Then she went out to the drunkard and shook him.

"Whash that?" murmured the toper.

"Satan," came the reply in a sepulchral tone.

"Shake handsh, old horsh. I married your sister."

"Mary, I saw a man kissing you at the back door last night. Was it the postman or the policeman?"

"Was it before eight o'clock or after?"

First Roughneck: "So the old man forced you to marry his daughter; couldn't you convince him he was wrong?"

Second Ditto: "I tried to, but he stuck to his guns."

Bus: "Say, honey, what have you got on for tonight?"

Lizzie: "Nothing I couldn't get out of for you, big boy!"—*Bridgeport Bulletin.*

"And how are you getting on, Mrs. Mumble?"

"Not so well, Mrs. Crumble. My poor husband has had a parallel stroke and we are having a time making ends meet."

Erastus was asked how he had voted. He replied: "In the mahnan', sah, I was inclined to de Republicam cause for they gave me three dollars; but in the afternoon, de Democrats gave me two dollahs, so I voted de Democratic ticket straight because dey was leas' corrup', sah, dey was leas' corrup'."

He had been to a "stag" dinner, and his wife wanted to hear all about it when he got home. "Well," he said, "one rather odd thing happened. Joe Blank got up and left the table because some fellow told a story that he didn't approve of." "That was noble of Joe," exclaimed the wife, "and—what was the story, John?"

Two Scotchmen were arrested for being drunk and disorderly.

When they were brought into court, the judge asked the officer where the third man was.

"Your Honor, there was no third man."

"There must have been. Who bought the liquor?"

"I have come here," said the angry man to the superintendent of the railroad, "to get justice sir. Yesterday, as my wife was getting off one of your cars the conductor stepped on her dress and tore a yard of frilling off the skirt."

The superintendent remained cool. "Well, sir," he said, "I don't know that we are to blame for that. What do you expect us to do? Get her a new dress?"

"No, sir, I don't intend to let you off so easily as that," the man replied gruffly. He brandished in his right hand a small piece of silk. "What I propose to have you do," he said, "is to match this silk."

First Mosquito—"Why are you making such a fuss?"

Second Ditto—"Whoopee! I passed the screen test."

An old lady was trying to purchase a hat. The salesgirl insisted on showing her the latest tilted creations. Finally the nice old lady, in desperation, broke out with: "Young lady, I'm 65, and I've worn petticoats all my life, and I want a hat that looks it!"

$$ *Easy Dollars!*

The "easiest money" any man makes comes from the "other fellow's experiences."

Men who have spent money for BAKER OIL TOOLS, know *how good* they are. They have tested them all over the world—under every possible condition—and THEY KNOW . . .

BAKER DRILL PIPE FLOATS

Here's "easy money" experience that costs you nothing.

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2. **Lengthens life of wire lines and brake bands.**
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4. **Prevents plugged bits.**
5. **Prevents blow-outs.**

. . . and the Valve can be broken out easily when necessary . . .

[SAVINGS on wire lines and brakes pays for a BAKER DRILL PIPE FLOAT . . . the SAFETY FEATURES are FREE.]

Look at your COMPOSITE CATALOGUE . . . you'll find most of the story there. Write for special literature . . . free.

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HUNTINGTON PARK, CALIFORNIA

COALINGA TAFT HOUSTON OKLAHOMA CITY TULSA NEW YORK

CATALOGS BULLETINS

Helpful Publications Which Manufacturers Will Be Glad to Send Free for the Asking.

Welding

Harnischfeger Corporation, 4400 W. National Avenue, Milwaukee, Wisconsin, has issued a new instructive catalog called "Weld It Well," a fully illustrated book on developments in welding practice and welder design. Several pages are devoted to direct illustrated comparison of old time practice and modern welding methods.

Laboratory Equipment

Burrell Technical Supply Company, Burrell Building, Pittsburgh, Pennsylvania, announces availability of Catalog No. 78, an 88-page volume devoted to description of laboratory testing equipment of many types, oxygen solutions, solutions for carbon monoxide and other gas analysis solutions, charcoal.

Lathe

South Bend Lathe Works, 400 East Madison Street, South Bend, Indiana, announces availability of Bulletin 4 describing a general purpose lathe.

Tractor

Caterpillar Tractor Company, Peoria, Illinois, announces availability of a new catalog describing the Caterpillar "Twenty" tractor and the process of its manufacture.

Drift Chart

Sperry-Sun Well Surveying Company, 1608 Walnut Street, Philadelphia, Pennsylvania, announces availability of a souvenir, pocketbook-size well drift chart of celluloid showing in footage the amount of drift in each degree away from the vertical at depths ranging from 1000 to 10,000 feet.

Telemeter

Builders Iron Foundry, Providence, Rhode Island, announces availability of Bulletin 202 describing the Chronoflo meter, a device particularly adapted for telemetering over standard telephone circuits, giving continuous information at distant points concerning quantities and rates of flow, temperatures, pressures, positions and levels.

Meters

Bailey Meter Company, Cleveland, Ohio, announces availability of Bulletin 300, devoted to steam and water fluid meters of various types for high and low pressures.

Line Pumps

Goulds Pumps, Incorporated, Seneca Falls, New York, announces availability of an 11-page illustrated bulletin, No. 202, covering centrifugal pipe line pumps.

Water Gauge Cock

C. A. Fischer Company of Fort Worth, Texas, has recently issued a new folder describing a free-wheeling water gage cock made for oil field work.

Stationary Diesels

Atlas Imperial Diesel Engine Company, Oakland, California, has available for distribution a very attractive, 32-page illustrated booklet devoted to stationary Diesel engines, with illustrations and descriptions of some used for drilling and pumping.

Check Valve Balls

The Edward Valve & Manufacturing Company, East Chicago, Indiana, announces availability of a folder describing check valve balls of special chromium alloy steel that are designed specifically for oil industry use where working steam pressures up to 1500 pounds are used and where hydraulic pressures handled run higher than 1500 pounds.

Arc Rectifiers

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pennsylvania, has for distribution a 16-page, illustrated booklet describing a new sectional type of mercury arc rectifier designed to make possible new service continuity standards. The booklet is designated as No. C-1907-B.

Oxy-Acetylene Tips

"Oxy-Acetylene Tips", November, house organ of The Linde Air Products Company, 30 East 42 Street, New York, contains an article on flame machining with welding torches.

Stainless Steels

Electro Metallurgical Company, 30 East 42 Street, New York, has just issued an elaborate booklet titled "Stainless Steel and Their Uses", which tells in part of the types of stainless steels used in the oil industry.

USE THIS COUPON
(Address manufacturer direct)

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Gentlemen:

Please send to me, without obligation, free booklet described in THE OIL WEEKLY of December 5, 1932.

NAME .....

COMPANY .....

ADDRESS .....

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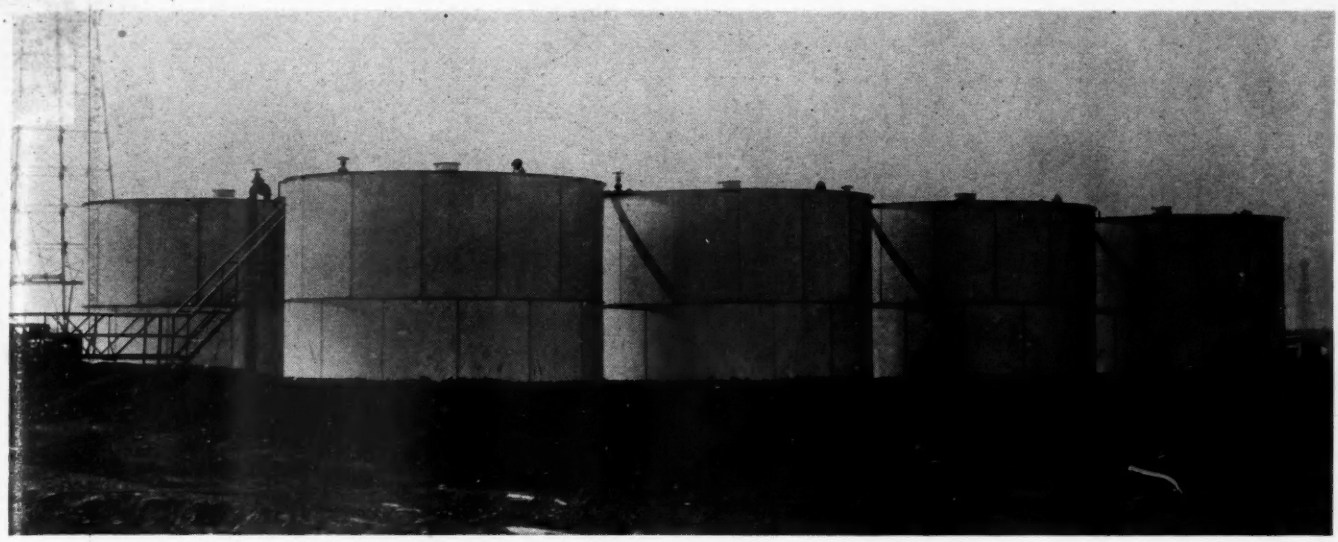

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